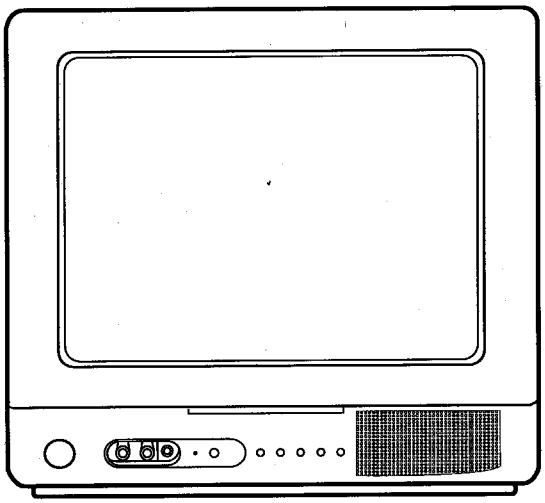
DAEWOO

Service Manual

37 / 51 / 55 Cm **Mono Colour Television**

CHASSIS : CP-375

MODEL : 14A5/14A5T/20A5/20A5T/21A5/21A5T
14Q1/14Q1T/20Q1/20Q1T/21Q1/21Q1T
14Q2/14Q2T/20Q2/20Q2T/21Q2/21Q2T
14Q3/14Q3T/20Q3/20Q3T/21Q4/21Q4T
14T1/14T1T/20T1/20T1T/21T1/21T1T
14T2/14T2T/20T2/20T2T/21T2/21T2T



DAEWOO ELECTRONICS CO., LTD.

■ Specifications

CRT	A34JLL90X01,A34EAC01X06,A34EFU13X01 (OEC) (PHILIPS) (POLKOLOR)
System	C14M7E : PAL-B/G for West Europe (Non-TXT) C14M7F : PAL-B/G, SECAM-L for France (Non-TXT) C14T7B : PAL- I for U.K (TXT) C14M7B : PAL- I for U.K (Non-TXT) C14T7L : PAL - I/I for Ireland (TXT) C14M7L : PAL - I/I for Ireland (Non-TXT)
Main Voltage	230V AC, 50Hz
Power Consumption	Stand-by mode : 8 Watts Normal operating mode : 39Watts
Sound output	1.5 Watts, 10 % THD at RF 60 % mod.
Speaker	3W 16 ohm x 1 EA
Antenna Impedance	75 ohm unbalanced input
Tuning system	VS(voltage synthesis) tuning
Tuner	3303KHC (C14M7E, C14M7F, C14T7L, C14M7L) BAND I : CH2 - CH4 BAND III : CH5 - CH12 CABLE BAND : S1' - S3' , S1 - S20 HYPER BAND : S21 - S41 BAND IV, V : CH21 - CH69 DT2-IV17D (C14T7B, C14M7B) BAND IV, V : CH21 - CH69
Number of program	70 programs
Aux. Terminal	21 pin EURO-SCART jack (AV input, TV output, RGB input, S-VHS input) RCA type AV input jack Headphone jack (3.5 mm ϕ)
Remote controller	RM-01A01 with 2 "AA" type batteries
Teletext (option)	8 pages memory TOP & FLOF : English, German/Dutch/Flemish, French, Italian, Spanish/Portuguese, Swedish/Finnish/Danish, Czech/Slovak
OSD language	-TXT Model : English,French,German,Italian,Spanish -Non-TXT Model : English,French,German,Italian,Spanish, Russian

Safety Instruction

WARNING: Only competent service personnel may carry out work involving the testing or repair of this equipment.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION.To avoid such hazards, the high voltage must not exceed the specified limit. The nominal value of the high voltage of this receiver is 22-23㎸ at max beam current. The high voltage must not, under any circumstances, exceed 27.5㎸.
   Each time a receiver requires servicing, the high voltage should be checked. It is important to use an accurate and reliable high voltage meter.
2. The only source of X-RAY Radiation in this TV receiver is the picture tube.For continued X-RAY RADIATION protection,the replacement tube must be exactly the same type tube as specified in the parts list.

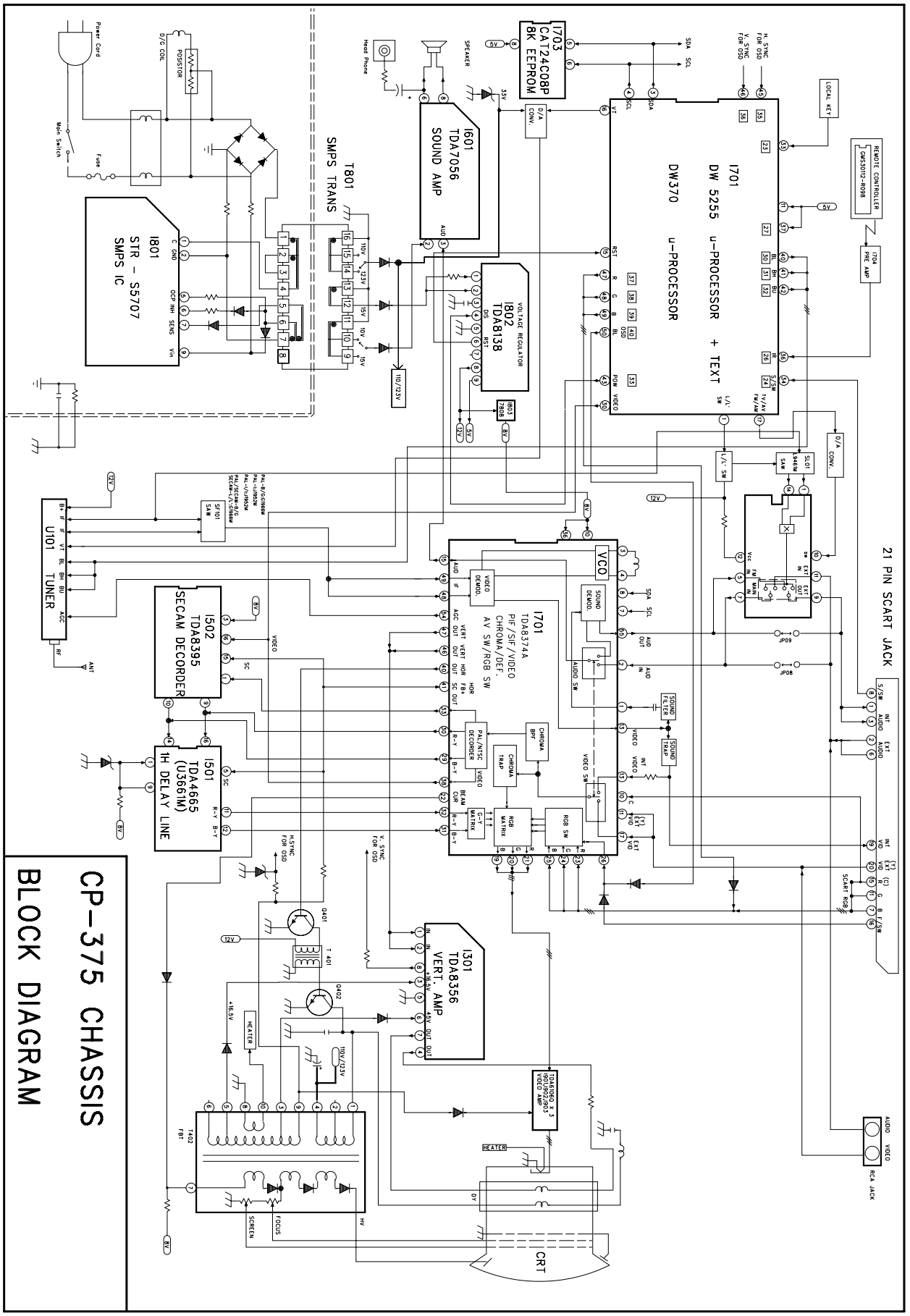
SAFETY PRECAUTION

1. Potentials of high voltage are present when this receiver is operating. Operation of the receiver outside the cabinet or with the back board removed involves a shock hazard from the receiver.
   1) Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high-voltage equipment.
   2) Discharge the high potential of the picture tube before handling the tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled.
2. If any Fuse in this TV receiver is blown, replace it with the FUSE specified in the Replacement Parts List.
3. When replacing a high wattage resistor(oxide metal film resistor)in circuit board, keep the resistor 10mm away from circuit board.
4. Keep wires away from high voltage or high temperature components.
5. This receiver must operate under AC230 volts, 50Hz. NEVER connect to DC supply or any other power or frequency.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-RAY RADIATION protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage,wattage,etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements, electrical components having such features are identified by designated symbol on the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create X-RAY Radiation.

■ Circuit block Diagram



■ Alignment Instructions

■ **Remark: A service remocon(R-30SVC) is needed to align the set.**

1. AFT

1.1 Standard B/G,D/K,I and L

1) Set a Signal Generator with
   - RF FREQUENCY = 38.9 MHz,
   - RF OUTPUT LEVEL = 80°±5 dBuV
   - System = PAL / SECAM - B/G, I, I/I
2) Connect the Signal Generator RF Output to P101 (Tuner IF Output).
   There must be no signal input to the tuner.
3) Press the “AFT” KEY and wait until the TV screen display “AFT OK”.

1.2 Standard SECAM-L’ (France VHF-Low)

∗ Above mentioned “1.1” adjustment has to be done in advance.

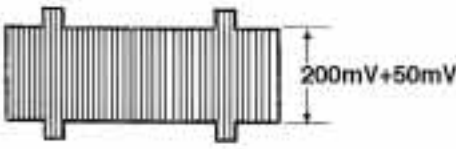
1) Set a Signal Generator with
   - RF FREQUENCY = 34.2 MHz,
   - RF OUTPUT LEVEL = 80°±5 dBuV
   - System = SECAM - L’
2) Connect the Signal Generator RF Output to P101 (Tuner IF Output).
   There must be no signal input to the tuner.
3) Press the “L’ AFT” KEY and wait until the TV screen display “L AFT OK”.

2. AGC

1) Set a Pattern Generator with RF LEVEL 63°±2 dBuV .
2) Connect a OSCILLOSCOPE PROBE to P101 (TUNER AGC INPUT).
3) Adjust AGC UP/DOWN KEY the voltage drop 1V dc over below its maximum voltage.

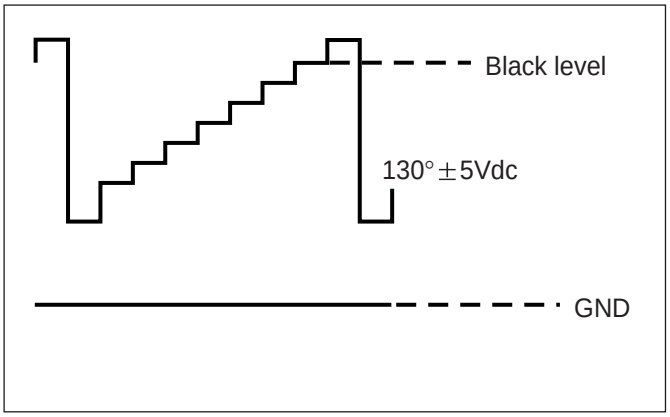
∗ Alternative Method

1) Set a Pattern Generator with
   - RF LEVEL 80°±5 dBuV
   - PAL CROSSHATCH
   (without SOUND CARRIER)
2) Connect a OSCILLOSCOPE
   (Bandwidth ≥ 100MHz) PROBE
   to P101 (TUNER IF OUTPUT).
3) Use AGC UP/DOWN KEY to obtain
   an envelop amplitude 200 + 50 mVp-p.



3. SCREEN

1) Apply a COLOR BAR pattern signal.
2) Set the CONTRAST, BRIGHTNESS
   to MAX, COLOR to MIN.
3) Set the R,G,B LEVEL to CENTER (31/63)
   with R,G,B UP/DOWN KEY.
4) Connect a OSCILLOSCOPE PROBE
   to P906 (CRT CATHOD R, G, B).
5) Adjust the SCREEN VOLUME on FBT
   such that the highest black level voltage,
   130°±5Vdc.



4. WHITE BALANCE

1) Set the TV to NOR I mode.
2) Set the R,G,B LEVEL to CENTER with R,G,B UP/DOWN KEY .
3) Adjust the R,G,B UP/DOWN KEY of the other color which did not appear on the screen to obtain WHITE.

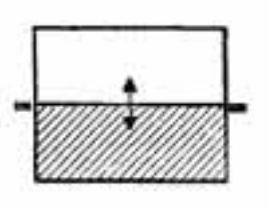
5. FOCUS

1) Apply a RETMA PATTERN signal.
2) Adjust the FOCUS VOLUME on FBT to obtain optimal resolution.

6. GEOMETRY

6.1 VERTICAL CENTER

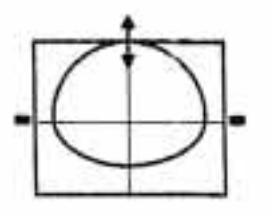
1) Set the TV to NOR I mode.
2) Pressing the V-SIZE UP/DOWN KEY, the lower half of the screen is blanked.
3) Adjust the border line of blanked picture coincident with the mechanical center marks of the CRT using the V-SIZE UP/DOWN KEY.



6.2 VERTICAL SIZE

∗ The VERTICAL CENTER adjustment has to be done in advance.

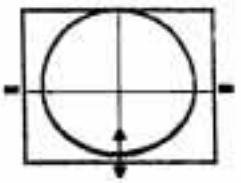
1) Apply a RETMA PATTERN signal.
2) Set the TV to NOR I mode.
3) Adjust the upper part of the picture with the V-SIZE UP/DOWN keys.



6.3 VERTICAL SLOPE

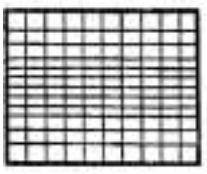
∗ The VERTICAL SIZE adjustment has to be done in advance.

1) Apply a RETMA PATTERN signal.
2) Adjust the lower part of the picture with the V-SLOPE UP/DOWN keys.



6.4 VERTICAL S-CORRECTION

1) Apply a CROSSHATCH PATTERN signal.
2) Adjust the S-COR UP/DOWN KEY to obtain the same distance between horizontal lines.



6.5 HORIZONTAL CENTER

1) Apply a RETMA PATTERN signal.
2) Adjust picture centering with CENTER LEFT/RIGHT keys.

If EEPROM (I703) has been changed ;

- Option data has to be changed and
- all alignment function has to be readjusted .

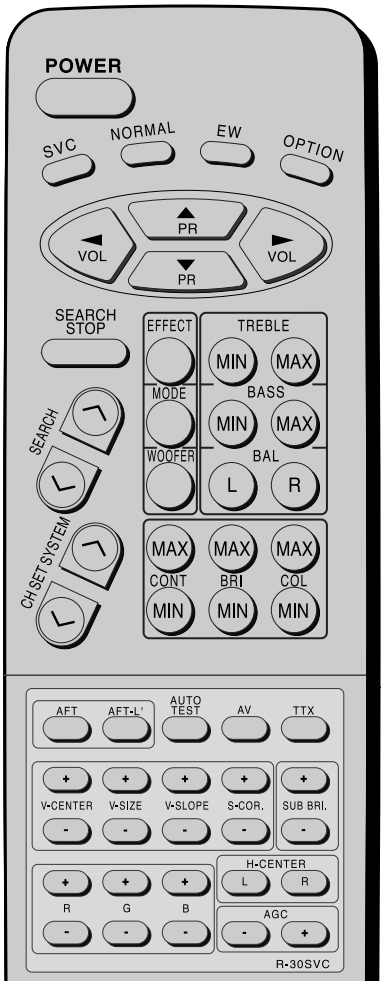
∗ Option

	Initial state (Blank EEPROM)	C14M7F (FRANCE)	C14T7B C14M7B (U.K)	C14M7E C14T7L C14M7L (OTHERS)
AV	AV2	AV2	AV2	AV2
BAND	3 BAND	3 BAND	1 BAND	3 BAND
FRANCE	OFF	ON	OFF	OFF
ATS	ON	ON	ON	ON

∗ The initial state of adjustment are as follows;

- V-Center, V-Slope V-Size, H-Center, R, G, B, AFT = Center (30/64 - 33/64)
- S-Correction = 00/64
- AGC = 10/64

∗Service Remocon



IC Description

DW5255M*(Micro-controller & West/East Teletext Decoder)
DW5255RM*(Micro-controller & Cyrillic Teletext Decoder)
=SDA5255-A*** (SIEMENS Type No.)

(1) General Description

The TDA5255 contains a slicer for VPS and TTX, an accelerating acquisition hardware module, a display generator for “LEVEL 1” TTX data and a 8 bit u-controller running at 333 nsec cycle time.
The controller with dedicated hardware guarantees flexibility, does most of the internal processing of TTX acquisition , transfers data to/from the external memory interface and receives/transmits data via I2C and UART user interfaces.
The Slicer combined with dedicated hardware stores TTX data in a VBI 1Kbyte buffer.
The u-controller firmware does the total acquisition task (hamming- and parity -checks, page search and evaluation of header control bits) once per field.

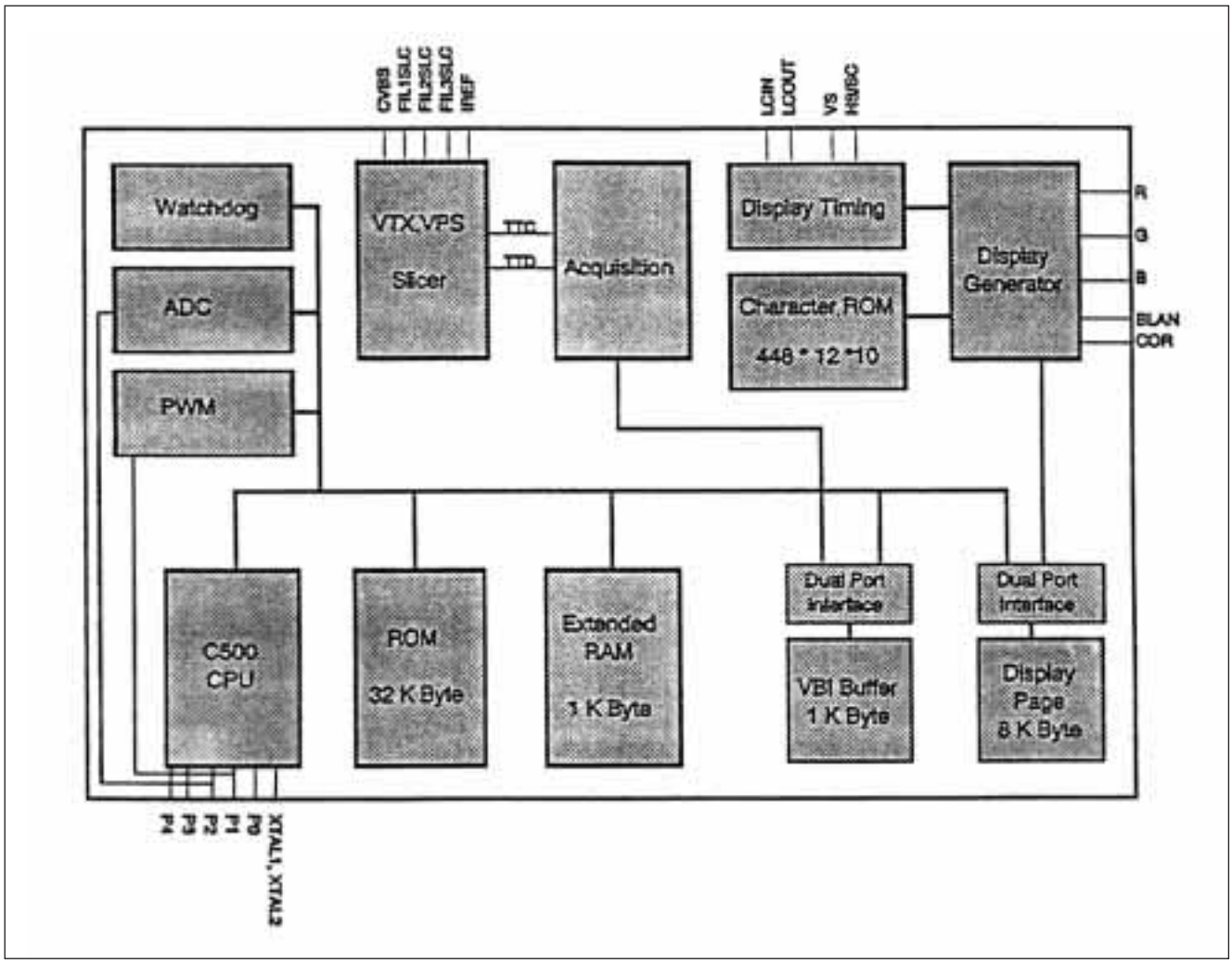
(2) Feature

- **Acquisition**:
  - feature selection via special function register
  - simultaneous reception of TTX and VPS
  - fixed framing code for VPS and TTX
  - programmable framing code window for TTX
  - Acquisition during VBI
  - direct access to VBI RAM buffer
  - Acquisition of packets x/26, x/27, 8/30 (firmware)
  - assistance of all relevant checks (firmware)
  - 1-bit framing-code error tolerance (switchable)
- **. Display:**
  - features selectable via special function register
  - 50/60 Hz display
  - level 1 serial attribute display pages
  - blanking and contrast reduction output
  - 8 direct addressable display pages
  - 12 x 10 character matrix
  - 96 character ROM (standard G0 character set)
  - 143 national option characters for 11 languages
  - 288 characters for X/26 display
  - 64 block mosaic graphic characters
  - 32 free addressable characters for OSD in expanded character ROM + 32 inside OSD box
  - double height (TOP/BOTTOM)
  - conceal/reveal
  - transparent foreground/background -inside/outside of a box
  - cursor (colour changes from foreground to background colour)
  - flash (flash rate 1s)
  - programmable horizontal und vertical sync delay
  - hardware assisted fast display page erase
  - full screen background colour in outer screen
- **Synchronization**:

  display synchronization to sandcastle or Horizontal Sync (HS) and Vertical Sync (VS) with startstop-oscillator or
  display synchronization to sandcastle or Horizontal Sync and Vertical Sync with external clock
  independent clock systems for acquisition, display and controller

- **Controller:**
  - 8 bit configuration
  - 18 MHz internal clock
  - 0.33 us instruction cycle
  - eight 16-bit data pointer registers (DPTR)
  - two 16-bit timers
  - watchdog timer
  - serial interface (UART)
  - 256 bytes on-chip RAM
  - 1 Kbyte on-chip extended RAM (access via MOVX)
  - 8 Kbyte on-chip ACQ-buffer-RAM (access via MOVX)
  - 6 channel 8-bit pulse width modulation unit
  - 2 channel 14-bit pulse width modulation unit
  - 4 multiplexed ADC inputs with 8-bit resolution
  - one 8-bit I/O port with open drain output and optional I2C emulation
  - two 8-bit multifunctional I/O ports
  - one 4-bit port working as digital or analog inputs
  - one 2-bit I/O port with optional address latch enable function
- **P-SDIP 52 package**
- **5 V supply voltage**

(3) Block Diagram



DW370M* (Micro-controller for Non-Teletext Model)
=TMS370C08A05 (TI Type No.)
=TMS370P08A05 (OTP device)

(1) General Description

The TMS370C08A05 devices are members of the cMCU370 family single-chip microcontrollers.
The cMCU370 family provides cost effective real-time system control through use of the PRISM methodology.
The PRISM methodology modular fabrication process integrates analog, digital, linear and power technologies on a single chip, thereby maximizing the total integration strategy.

The TMS370C08A05 devices are designed with the high-performance 8-bit TMS370C8 CPU.
Features of the 'C8 CPU and system module as implemented on this device include three CPU registers (stack pointer, status register, and the program counter), two external interrupts, reset, memory mapped control registers.

(2) Feature

- **Internal Memory Configurations**
  - 16K-Byte ROM Program Memory
  - 512-Byte RAM
- **Operating Features**
  - Supply Voltage (VCC) 5 V °± 10%
  - Input Clock Frequency 2, 20MHz
  - Industrial Temperature Range
- **Device Integrity Features**
  - Address Out-of-Range Reset
  - Stack Overflow Reset
  - Parallel Signature Analysis (CRC)
- **Two 16-Bit General Purpose Timer(T8A)**
  Each Includes:
  - 16-Bit Resettable Counters with individual 8-Bit Prescaler
  - 2 PWM Channels or
  - 2 Input Captures or
  - 1 Input Capture and 1 PWM Channel
- **One 14-Bit PWM Module**
  - 14-Bit Resettable Counters
  - 14-Bit PWM Output Port
- **One 8-Bit PWM Module**
  - 8-Bit Resettable Counters
  - 8-Bit PWM Output Port with 12V Open Drain
- **OSD Module**
  - Blanking/ Contrast reduction out
  - Transparent Background
  - Transparent Foreground
  - Full Screen Background Color
  - Controlled Color, Blink, Size, Smoothing, Fringe of Each lines of Character
  - Two size of different Font 12x10 and 12x18 by Hard Masking
  - OSD Window Display with 40x25 lines
- **8-Bit A/D Converter With 3 Inputs**
  - Single or Dual Channel Operation
  - Single or Continuous Conversion Modes
- **Flexible Interrupt Handling**
  - Global and Individual Interrupt Masking

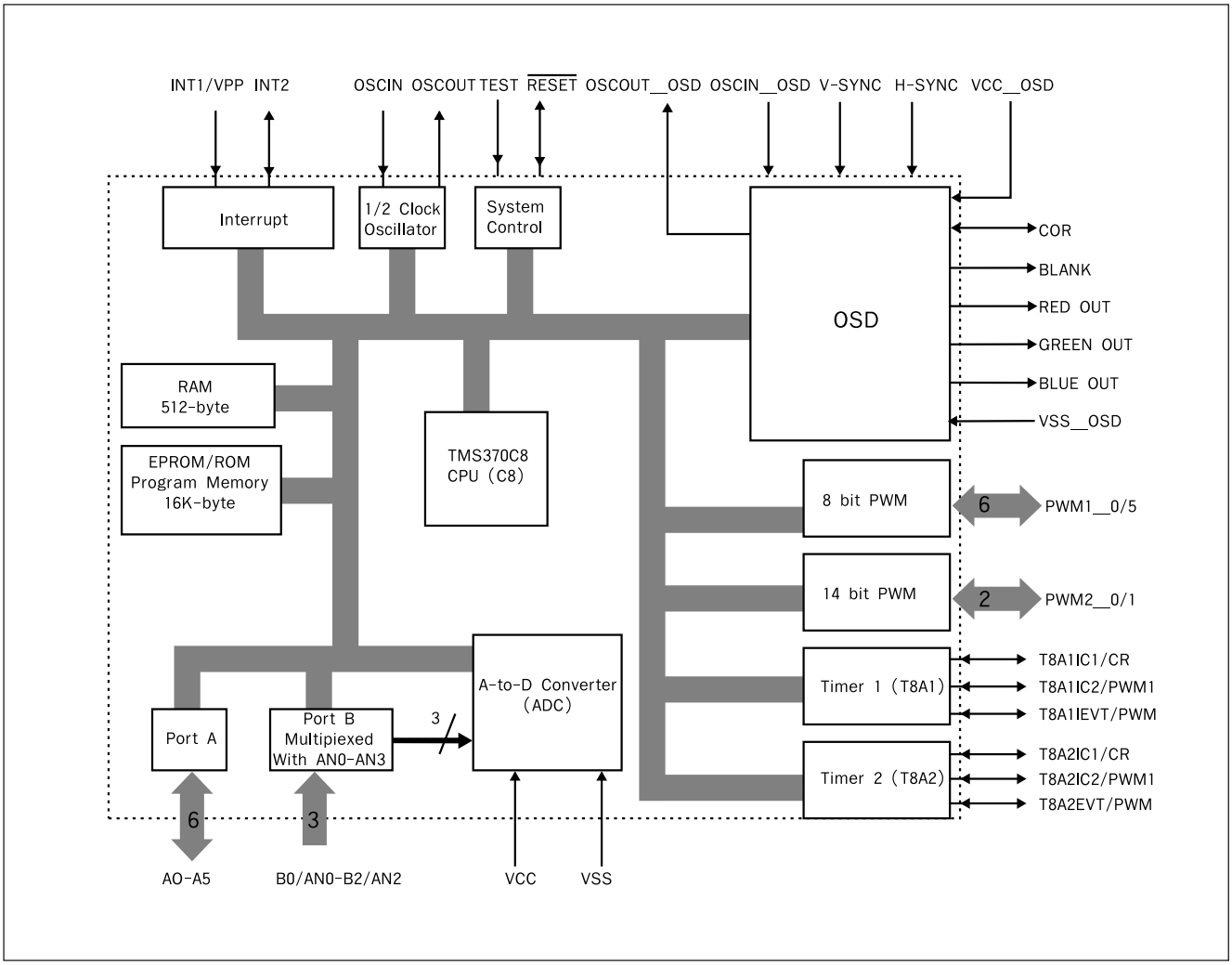
- 2 S/W Programmable Interrupt Levels
- 2 External Interrupt (1 Non-Maskable)
- Programmable Rising or Falling Edge Detect

• **09 CMOS Compatible I/O Pins**

- All Peripheral Function Pins Software Configurable for Digital I/O
- 6 Bidirectionals, 3 Input Pins

• **Plastic 42 YSDP Pins Package**

(3) Block Diagram



(4) Pin Description

* A : DW5255M*/DW5255RM*, B : DW370M*

Pin		Name		Symbol	Description
A*	B*	A*	B		
1	1	P3.1	T1IC1/CR	SYS	SECAM-L' OUT for switching SAW filter L9461 - SECAM-L' : H - SECAM- L : L
2	2	P0.7/Open Drain	A0	BUSSTOP	I2C BUS STOP IN for Computer controlled alignment in Factory (Active Low)
3	3	P0.6/Open Drain	A1	SDA	Serial data IN/OUT for I2C
4	4	P0.5/Open Drain	A2	SCL	Serial clock IN/OUT for I2C
5	5	P0.4/Open Drain	A3	OPTION	#5 #6 Teletext H H West Teletext L H East Teletext H L Turkish Teletext
6	6	P0.3/Open Drain	A4	OPTION	
7	7	P0.2/Open Drain	A5	OPTION	Auto search priority H : L/L' priority L : B/G priority
8	8	P0.1/Open Drain	PWM1-0/ Open Drain	OPTION	Not Used (Reserved)
9	9	P0.0/Open Drain	PWM1-1/ Open Drain	LED	LED drive OUT - Stand-by mode : H - Operating mode : L (IR reception : pulse)
10	10	VSS		VSS	ground
11	11	VCC		VCC	Power Supply
12	12	XTAL1	OSCIN	OSCIN	Input to inverting osc. Amplifier
13	13	XTAL2	OSCOUT	OSCOUT	Output of inverting osc. Amplifier
14	14	P4.0/ALE	PWM1-2/Open Drain		Not Used
15	15	RESET	RESET/Open Drain	RST	RESET IN (ACTIVE LOW)
16	16	P1.7/14BIT PWM	PWM2-0	VT	TUNING VOLTAGE OUT
17	17	P1.6/14BIT PWM	PWM2-1	SW	TV/AV &AM/FM SW.OUT for STV8225
18	18	P1.5/8BIT PWM	PWM1-3/Open Drain	F/SW	F/SW IDENT IN for stopping OSD display in RGB mode - H : TV /AV mode - L : RGB mode
19	19	P1.4/8BIT PWM	PWM1-4/Open Drain		Not Used
20	20	P1.3/8BIT PWM	PWM1-5/Open Drain	MUTE	AUDIO MUTE OUT
21	21	P1.2/8BIT PWM	TEST	GND	(Must be tied 0V for DW370M*)
22		P1.1/8BIT PWM			Not Used
23		P1.0/8BIT PWM			Not Used
24		VSSA		VSSA	Analog GND for Slicer
25		FIL3		FIL3	PLL Loop Filter I/O for Phase Shifting

Pin		Name		Symbol	Description
A*	B*	A*	B		
26		FIL2		FIL2	PLL Loop Filter I/O for TTX Slicing
27		FIL1		FIL1	PLL Loop Filter I/O for VPS Slicing
28		VCCA		VCCA	Analog Supply for Slicer
29		IREF		IREF	Reference Current for Slicer PLLs
30		CVBS		CVBS	CVBS IN
31		P2.3/8 bit ADC			Not Used
32	22	P2.2/8 bit ADC	B0/AN0/ADC	AGC	IF AGC INPUT for Auto Tuning System
33	23	P2.1/8 bit ADC	B1/AN1/ADC	KS	Local KEY SCAN IN
34	24	P2.0/8 bit ADC	B2/AN2/ADC	S/SW	S/SW IDENT IN for Automatic switching between TV/AV mode - H : AV / RGB mode - L : TV mode
35	25	VSS	VSS-OSD	VSS	Ground
36	26	P3.3/INT1	INT1	IR	REMOTE IR IN
37	27	VDD	VCC-OSD	VDD	Power Supply
38	28	LCIN	OSCIN-OSD	LCIN	CLOCK IN for OSD
39	29	LCOUT	OSCOUT-OSD	LCOUT	CLOCK OUT for OSD
40	30	P3.7/TXT I/O	T2EVT/PWM2	BL	BAND VHF-L OUT (Active High)
41	31	P3.6/RXD	T2IC2/PWM1	BH	BAND VHF-H OUT (Active High)
42	32	P3.5/T1	T2IC1/CR	BU	BAND UHF OUT (Active High)
43	33	P3.4/T0	T1EVT/PWM2	POWER	POWER CONTROL OUT
44	34	P3.2/INT0	INT2		Not Used
45	35	HS/SC	HSYNC	HSYNC	HOR. SYNC. IN (Active High)
46	36	P4.7/VS	VSYNC	VSYNC	VERT. SYNC. IN (Active High)
47	37	R		R	RED OUT
48	38	G		G	GREEN OUT
49	39	B		B	BLUE OUT
50	40	BLANK		BL	BLANK OUT
51	41	COR		COR	Not Used (CONTRAST REDUCTION OUT)
52	42	P3.0	T1C2/PWM1	EVEN/ODD	EVEN/ODD OUT for non-interlacing in TTX mode

CAT24C08P (E^2 PROM)

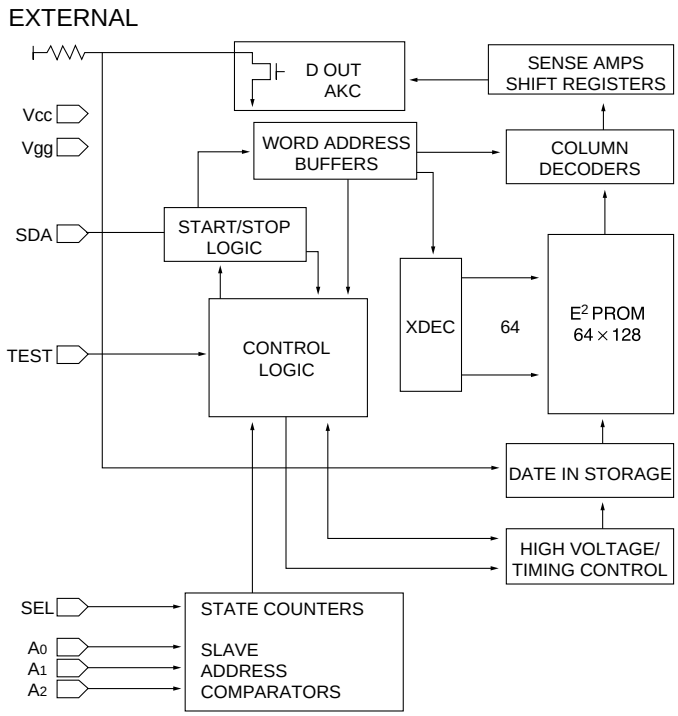
(1) Typical Features

- IC Bus compatible
- Low power CMOS Technology
- 16 Byte page write Buffer
- Self-Timed Write cycle with Auto-Clear
- 100,000 program/Erase cycles
- 100 Year Data Retention
- Optional High Endurance Device Available

(2) Description

The CAT24C08P is a 8K bit serial CMOS E^2 PROM internally organized as 1024x8bits. The CAT 24C08P features a 16 byte page write buffer.

(3) Block Diagram



(4) Pin Description

PIN	SYMBOL	DESCRIPTION
1-3	A0, A1, A2	Device Address Inputs
4	Vss	Ground
5	SDA	Serial Data/Address
6	SCL	Serial Clock
7	TEST	Connect to Vss
8	Vcc	+5V Power supply

TDA8374A (Single chip TV Processor for Negative modulation IF)
TDA8374 (Single chip TV Processor for Negative & positive modulation IF)

(1) General Description

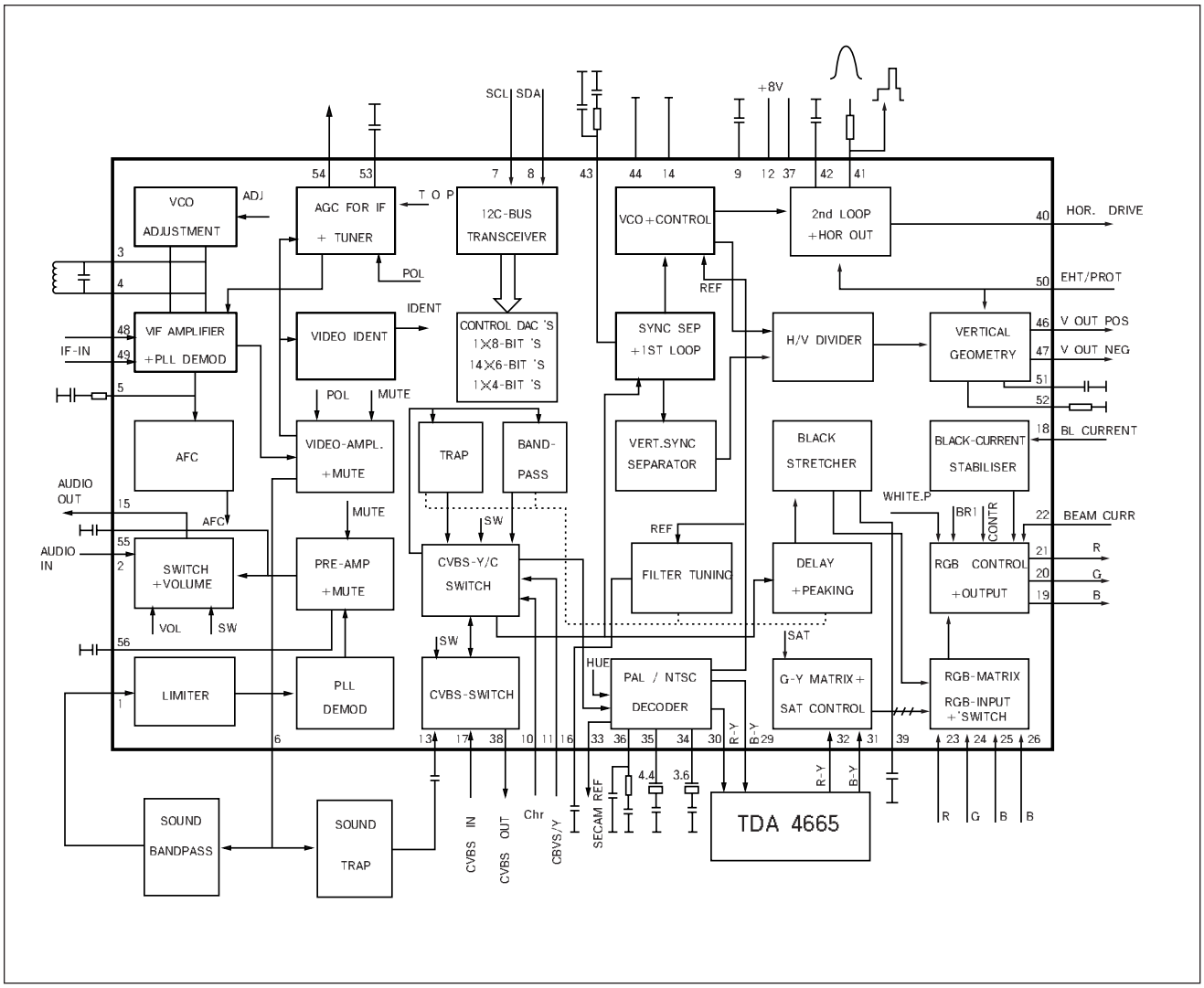
The TDA8374(A) is I2C-bus controlled single chip TV processors which are intended to be applied in PAL/NTSC television receiver.

The IC is mounted in a S-DIL 56 envelope.

(2) Feature

- **IF**
  - Vision IF amplifier with high sensitivity and good figures for differential phase and gain
  - PLL demodulator with high linearity offering the possibility for (single standard) intercarrier stereo audio application .
  - Alignment PLL via I2C
  - [TDA8374] Multistandard IF with negative and positive modulation, switchable via I2C
- **AUDIO**
  - Alignment free multi standard PLL audio demodulator (4.5 to 6.5 MHz.)
  - Mono volume control
- **Video**
  - Integrated luminance delay line
  - Integrated chroma trap and bandpass filters (auto calibrated)
  - Asymmetrical peaking circuit in the luminance channel
  - Black stretching of non standard CVBS or luminance signals
- **Colour**
  - SECAM interface for application with SECAM add-on TDA8395.
- **RGB**
  - RGB control (brightness, contrast, saturation)
  - Black current stabilization and white point adjustment
- **Input / Output**
  - Flexible video source select with CVBS input for the internal signal and two external video inputs(one switchable for CVBS or Y/C).
  - The output signal of the video source select is externally available (also as CVBS when Y/C input is used).
  - External audio input.
  - Linear RGB input with fast blanking.
- **Synchronization and Deflection**
  - Horizontal synchronization with two control loops and alignment free horizontal oscillator.
  - Slow start and slow stop of the horizontal drive output to enable low stress start-up and switch-off from the line circuit at nominal line supply voltage.
  - Vertical count-down circuit for stable behavior with provisions for non-standard signals.
  - Vertical geometry control.
  - Vertical drive optimized for DC coupled vertical output stages.
- **Control**
  - Full I2C bus control, as well for customer controls as for factory alignment.
  - All automatic controls have an option for forced mode.
- **Power consumption**
  - Low power consumption (900 mW at 8.0 Volts).
- **Packaging**
  - SDIL-56 (Shrinked Dual In Line, 56 pins).

(3) Block Diagram



(4) Pin Description

No	Name	Description
1	SOUND IF INPUT	The sound equivalent input impedance is 8k5 ohm // 5pF which has to be taken into account for proper termination of the ceramic filters. The DC impedance is very high. The minimum input signal for catching is l mV rms.
2	EXT AUDIO INPUT	An external sound signal (500mVrms) for example from SCART can be applied to this pin via a coupling capacitor. The input impedance is 25kohm.
3 4	VCO REF FILTER	The IF VCO tuned circuit is applied to these pin. Its resonance frequency must be two times the IF-frequency and in between a range of 64-120MHz. This range is suitable for the IF standards as 33.4, 38.9, 45.75 and 58.75MHz. The VCO frequency can be adjusted by I2C bus so a fixed coil can be used.
5	PLL LOOP FILTER	The PLL loopfilter is a first order filter with R=390 ohm and C = 100nF in series to ground. The loopfilter bandwidth is 60kHz and is optimal for both fast catching and sufficient video suppression for optimal sound performance. Sound performance can theoretically be improved by adding a small capacitor (approx.0- 4.7nF) between pin 5 and ground. This however must be evaluated further because the normal video signal response should not be effected.
6	IF VIDEO OUTPUT	Although the video output impedance is low it is recommended to avoid high frequency current in the output due to for instance sound trap filters. This can be achieved by means of an emitter follower at the video output with a 1㏀ resistor in series with the base.
7	BUS INPUT : SCL	Serial clock line
8	BUS INPUT : SDA	Serial data line
9	BANDGAP DECOUPLING	The bandgap circuit provides a very stable and temperature independent reference voltage. This reference voltage (6.7V) ensures optimal performance of the TDA8374 and is used in almost all functional circuit blocks.
10	CHROMA INPUT	The supplied C S-VHS input burst amplitude should be nominally 300mVpp (assumed is a colour bar signal with 75% saturation and with chroma/burst ratio of 2.2/1). The C S-VHS input is internally clamped to 4V via 50㏀. The external AC coupling capacitor with 50㏀ forms a high pass filter. A recommended coupling capacitor is 1 nF; the high pass filter cut off frequency is then approximately 3KHz.
11	Y/CVBS INPUT	The Y S-VHS signal of 1Vpp (inclusive sync amplitude) is AC coupled to pin11.
12 37	MAIN POSITIVE SUPPLY	The TDA8374 has a main supply pin 12 and a horizontal supply pin 37. Both pins have to be supplied simultaneously. Notice that the IC has not been designed to use this pin 37 as start pin. (pin 37 supplies the horizontal oscillator, PHI-1 and PHI-2) (pin 12 supplies the rest of the circuits in the IC) The nominal supply voltage is 8V. With min/max values of 7.2-8.8V. Also in stand-by condition the IC must be supplied with 8V.

No	Name	Description
		A voltage detection circuit is connected to both pins. - pin12 if V12 <6.8V than a power on reset, POR, is generated. The Hout output is disabled immediate. - pin37 if V37 <5.8V than the horizontal output is disabled immediate.
13 17	INT CVBS INPUT EXT CVBS INPUT	It is recommended that the CVBS1 int and CVBS2 ext input amplitudes are 1 Vpp (inclusive sync amplitude). This, because the noise detector switches the Ø1 loop to slow mode (i.e. auto Ø1mode when FOA, FOB = 0,0) when noise level exceeds 100mVrms (i.e. at S/N of 20dB).
14	GROUND	All internal circuits are connected to this ground pin 14.
15	AUDIO OUTPUT	The output signal is volume controlled and is active for both internal and external audio signals. The nominal gain is +9dB and -71dB, which gives a total control range of 80dB. The output signal range therefor is 0.14- 1400mVrms The bandwidth is >100kHz, the DC level is 3.3V and the output impedance is 250 Ω .
16	DECOUPLING FILTER TUNING	Voltage variations at pin 16, which can be due to external leakage current or crosstalk from interference sources, should be less than 50mV to ensure that tuning of filters/delay cells remains correct.
18	BLACK CURRENT INPUT	For correct operation of the loop CURRENT information is supplied to the black current input pin.
19 20 21	BLUE OUTPUT GREEN OUTPUT RED OUTPUT	The RGB outputs are supplied to the video output stages from pins 21, 20 and 19 respectively. For nominal signals (i.e. CVBS/S-VHS, -(R-Y)/- (R-Y), TXT inputs) and for nominal control settings, then the RGB output Signal amplitudes is typically 2VBLACK_WHITE.
22	V-GUARD INPUT/ BEAM CURRENT LIMITER	**Vertical Guard** With this function, the correct working of the vertical deflection can be monitored. If the vertical deflection fails, the RGB outputs are blanked to prevent damage to the picture tube. **Beam current limitinq** The beam current limiting function is realised by reducing the contrast (and finally the brightness) when the beam current reaches s too high level. The circuit falls apart in two functions: - Average beam current limiting (ABL): reacting on the average content of the picture - Peak white limiting (PWL): reacting on high local peaks in the RGB signal.
23 24 25	RED INPUT GREEN INPUT BLUE INPUT	The Rin, Gin, Bin input signals (nominal signal amplitude of 700mV) are AC coupled to pin 23, 24 and 25 respectively. Clamping action occurs during burstkey period.
26	RGB INSERTION SWITCH INPUT	The table below a survey is given of the three modes which can be selected with a voltage on RGB insertion switch input pin ; Vpin26 I2C function Selected RGB signal 0.9V-3V IE1=0 RGB(internal) IE1=1 Rin,Gin,Bin (fast insertion on pin23,24,25) > 4V IE1=X OSD can be inserted at the RGBout pins
27	LUMINANCE INPUT	An nominal input signal amplitude of 1 Vblack-white MUST be DC coupled

No	Name	Description
		to the luminance input pin 27. The pin is internally AC coupled to the luminance clamp via a capacitor of 50pF; clamping action occurs during burstkey period.
28	LUMINANCE OUTPUT	The luminance output signal is approximately l V black-white with typical output impedance of 25O ohm.
29 30	B-Y OUTPUT R-Y OUTPUT	The maximum output impedance of pins 29 and 30 is 500 Ω when PAL/NTSC signals are identified. When SECAM is identified by the SECAM add-on and no PAL/NTSC is already identified by the ASM, then the ASM sets the -(B-Y)/-(R-Y) output switch open (via DEMSW). This enables the -(B-Y)/-(R-Y) outputs of the TDA8395 to be directly connected to pins 29 and 3O respectively.
31 32	B-Y INPUT R-Y INPUT	The -(B-Y),-(R-Y) output signals (supplied from baseband delay line) are AC coupled, via a coupling capacitor of 10nF or greater, to the -(B-Y)/-(R-Y) inputs; both inputs are clamped during burstkey period.
33	SECAM REF OUTPUT	The SECAM reference output is directly connected to pin l of the TDA8395 for SECAM decoding ; it also can be used as a reference for comb filter applications.
34 35	X-TAL 3.58 X-TAL 4.43	To ensure correct operation of both: - colour processing internal circuits, - sync calibration internal circuits, it is only allowed to have 3.6MHz Xtals on pin34: both 4.4MHz,3.6MHz Xtals are allowed on pin 35. If pin 35 is not used: then it is left open in application (also XA,XB=O,1).
36	LOOP FILTER BURST PHASE DETECTOR	One of the important aspects of the PLL is the 1oop filter connected to pin 36; it influences the dynamic performance of the loop.
38	CVBS OUTPUT	The output amplitude is 1Vpp (transfer gain ratio between CVBS1int or CVBS2ext or CVBS3ext/Ys-vhs and CVBSout is 1). The maximum output impedance is 250 ohm.
39	BLACK PEAK HOLD CAPACITOR	For the correct working of the black stretcher an external time constant should be added at the black peak hold capacitor input.
40	HOR OUTPUT	This open collector output is meant to drive the horizontal output stage. The output is active low, i.e. the line transistor should conduct during the low period of the output.
41	SANDCASTLE OUTPUT/ FLYBACK INPUT	Pin 41 is a combined input/output pin. The pin provides a three level sandcastle pulse. Both burstkey pulse and vertical blanking pulse are always available, the line blanking pulse is only present when the external flyback pulse is fed to this pin. The line flyback pulse, fed to this pin is used for two functions: - input signal for the PHI-2 1oop and - RGB line blanking. (without flyback pulse blanking occurs only during the burstkey pulse) To ensure correct working of the delay line and SECAM add-on, the output should not be loaded with more than: - Sandcastle input delay line TDA 4665 - Sandcastle input SECAM add-on TDA 8395
42	PHI-2 FILTER / FLASH PROTECT	The loopfilter is a first order filter. This pin requires a capacitor (C) only.

No	Name	Description
		A flash protection becomes active when this pin is forced >6V. The horizontal drive is switched-off immediately. Once the voltage is <6V the horizontal drive is switched-on again via the slow start procedure.
43	PHI-1 FILTER	The loopfilter connected to pin 43 is suitable for various signal conditions as strong/weak and VCR signal. This is achieved by switching of the loopfilter time constant by changing the PHI-1 output current. Via I2C bus FOA/B, different time constants can be chosen, including an automatic mode which gives optimal performance under varying conditions.
44	GROUND	To this pin are connected the IC-substrate and horizontal output.
45	EAST-WEST DRIVE	not used
46 47	VERT DRIVE + VERT DRIVE -	The vertical drive has a current output. The output is balanced which ensures a good common mode behavior with temperature and makes the output signal less sensitive for disturbances.
48 49	IF INPUT	The PLL frequency range is 32-60MHz with corresponding VCO frequency 64-120MHz. The IF input impedances is 2 KΩ in parallel with 3pF and matches the required load for commonly used SAW filters. A DC coupling is allowed, so no series capacitors between SAW filter and IF input are necessary.
50	EHT/OVERVOLTAGE PROTECT INPUT	not used
51	VERT SAWTOOTH CAPACITOR	This pin requires a capacitor to ground of l00nF +,- 5%. The optimal sawtooth amplitude is 3.5V and is determined by the external capacitor and charge current. The sawtooth bottom-level is 2V.
52	REFERENCE CURRENT INPUT	This pin requires a resistor to ground. The optimal reference current is 100μA. which is determined by this resistor.
53	AGC DECOUPLING CAPACITOR	The AGC capacitor value is 2.2μF and has been defined for an optimal compromise between AGC speed and tilt for all AGC modes (negative/positive modulation).
54	TUNER AGC OUTPUT	This output is used to control (reduce) the tuner gain for strong RF signals. The tuner AGC is an open collector output which is acting as a variable current source to ground.
55	AUDIO DEEMPHASSIS	Only a capacitor has to be connected to this pin that defines the deemphasis time constant. The signal is internally connected through to the Audio switch. The deemphasis output is fixed, thus not controlled by the volume, and can be used for SCART.
56	DECOUPLING SOUND DEMODULATOR	This pin requires a capacitor of 10μF connected to ground. The pin acts as a low pass filter needed for the DC feedback loop.

TDA4665(Base Band Delay Line)

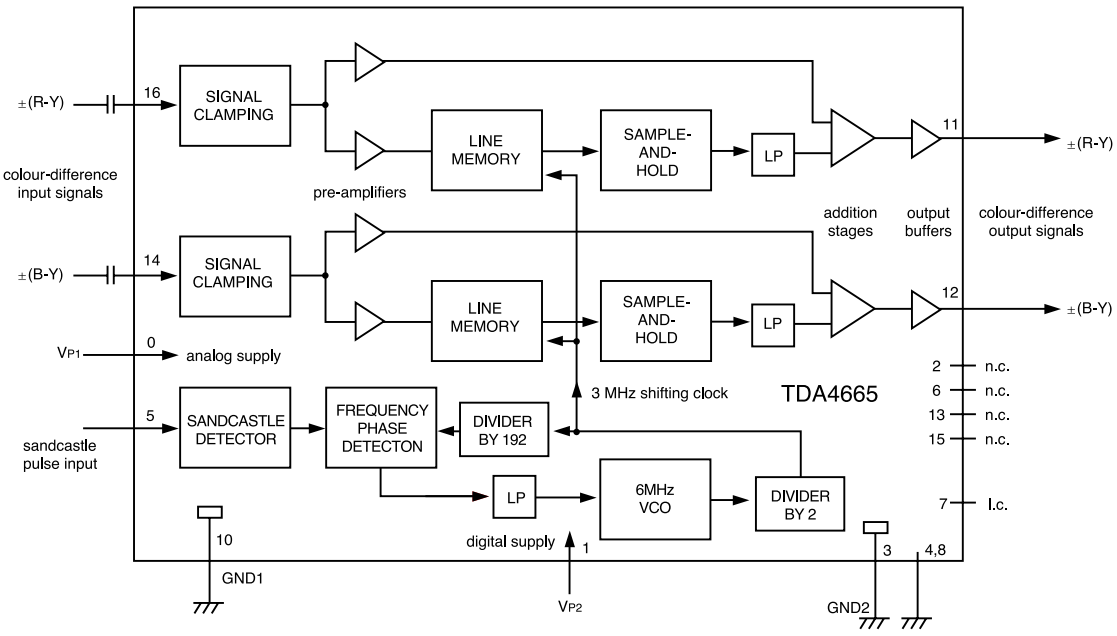
(1) Features

- Two comb filters, using the switched-capacitor technique,for one line delay time (64µs)
- Adjustment free application
- No crosstalk between SECAM colour carriers
- Handles negative or positive colour-difference input signals
- Clamping of AC-coupled input signals(±(R-Y)and±(B-Y))
- VCO without external components
- 3MHz internal clock signal derived from a 6MHz VCO, line-locked by the sandcastle pulse (64µs line)
- Sample-and -hold circuits and low-pass filters to suppress the 3 MHz clock signal
- Addition of delayed and non-delayed output signals
- Output buffer amplifiers
- Comb filtering functions for NTSC colour-difference signals to suppress cross-colour

(2) General Description

The TDA4661 is an integrated baseband delay line circuit with one line delay. It is suitable for decoders with colour-difference signal outputs±(R-Y)and±(B-Y).

(3)Block Diagram



(4) Pin Description

SYMBOL	PIN	DESCRIPTION
V_{p2}	1	+5V supply voltage for digital part
n.c.	2	not connected
GND2	3	ground for digital part (0V)
i.c.	4	internally connected
SAND	5	sandcastle pulse input
n.c.	6	not connected
i.c.	7	internally connected
i.c.	8	internally connected

SYMBOL	PIN	DESCRIPTION
V_{p1}	9	+5V supply voltage for analog part
GND1	10	ground for analog part (0V)
V_0 (R-Y)	11	± (R-Y) output signal
V_0 (B-Y)	12	± (B-Y) output signal
n.c.	13	not connected
V_1 (B-Y)	14	± (B-Y) input signal
n.c.	15	not connected
V_1 (R-Y)	16	± (R-Y) input signal

TDA8395 (Secam Decoder)

(1) Features

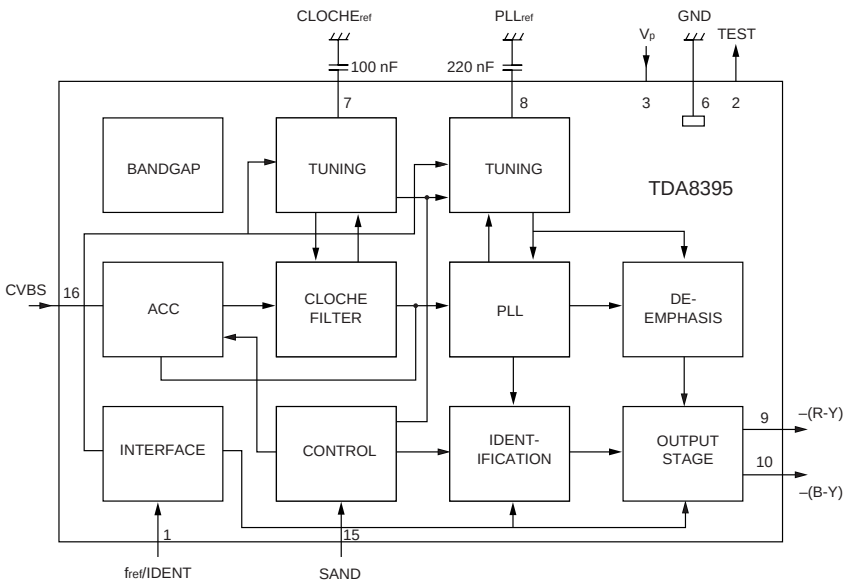
- Fully integrated filters
- Alignment free
- For use with baseband delay

(2) Description

The TDA8395 is a self-calibrating,fully integrated SECAM decoder. The IC should preferably be used in conjunction with the PAL/NTSC decoder TDA8362 and with the switch capacitor baseband delay circuit TDA4665. The IC incorporates HF and LF filters, a demodulator and an identification circuit (luminance is not processed in this IC).

A highly stable reference frequency is required for calibration and a two-level sandcastle pulse for blanking and burst gating.

(3) Block Diagram



(4) Pin Description

SYMBOL	PIN	DESCRIPTION
fp1/IDENT	1	reference frequency input/identification input
TEST	2	test output
Vp	3	positive supply voltage
n.c.	4	not connected
n.c.	5	not connected
GND	6	ground
CLOCHEref	7	Cloche reference filter
PLL ref	8	PLL reference
-(R-Y)	9	-(R-Y) output
-(B-Y)	10	-(B-Y) output
n.c.	11	not connected
n.c.	12	not connected
n.c.	13	not connected
n.c.	14	not connected
SAND	15	sandcastle pulse input
CVBS	16	video (chrominance) input

TDA6106Q (Video Output Amplifier)

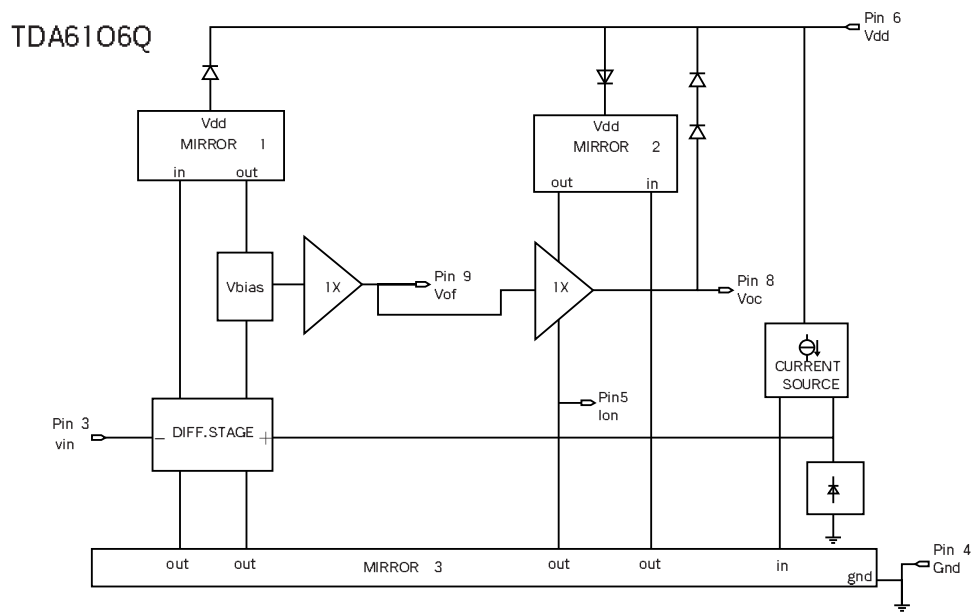
(1) General Description

The TDA6106Q is a monolithic video output amplifier (5MHz bandwidth) in a SIL 9 MPpackage, using high-voltage DMOS technology, and is intended to drive the cathode of CRT directly .
To obtain maximum performance, the amplifier should be used with black-current control.

(2) Feature

- Black - current measurement output for automatic black current stabilization (ABS)
- Single supply voltage of 200V
- Internal protection against positive appearing CRT flash-over discharge
- Protection against ESD
- Internal 2.5V reference circuit
- Controllable switch-off behavior

(3) Block Diagram



(4) Pin Description

PIN	SYMBOL	DESCRIPTION
1		N.C
2		N.C
3	V in	inverting input
4	GND	ground, substrate
5	I om	Black-current measurement output
6	V dd	supply voltage high
7		N.C
8	V oc	cathode output
9	V of	feedback/transient output

STV8225 (AM SIF Circuit)

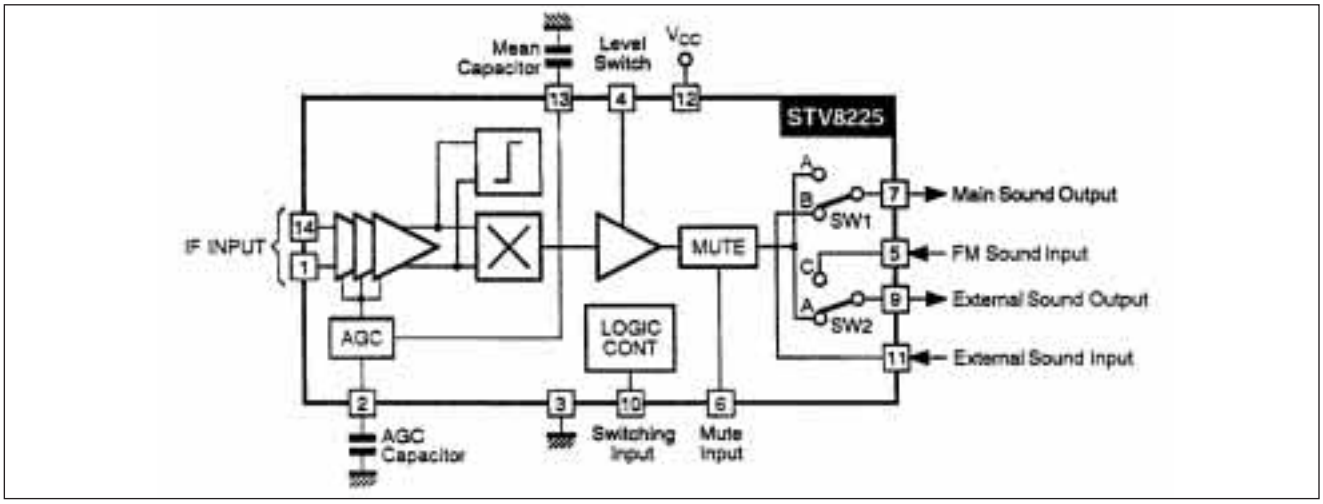
(1) General Description

The STV8225 is intended for the demodulation of the AM sound of the L standard.

(2) Feature

- sound AM synchronous demodulator
- AM/FM audio switch and AV/TV audio switch

(3) Block Diagram



(4) Pin Description

PIN	SYMBOL	DESCRIPTION
1, 14	IF in	IF input
2	AGC	AGC capacitor
3	GND	ground
4	level sw	level switch of AF output voltage (pin7,9) - open : 250 mVrms - ground : 500 mVrms
5	FM in	FM sound input
6	mute	mute input
7	main in	main sound input
8		n.c
9	ext out	external sound output
10	sw in	switching input voltage / mode / connection (pin7, pin 9) 2.3V below / TV/FM / A / C 4.6V below / TV/AM / A / A 6.8V below / AV/AM / B / A 6.8V above / AV/FM / B / C
11	ext in	external sound input
12	Vcc	supply voltage (+9V)
13	mean cap	mean capacitor

TDA8356 (DC-coupled vertical deflection circuit)

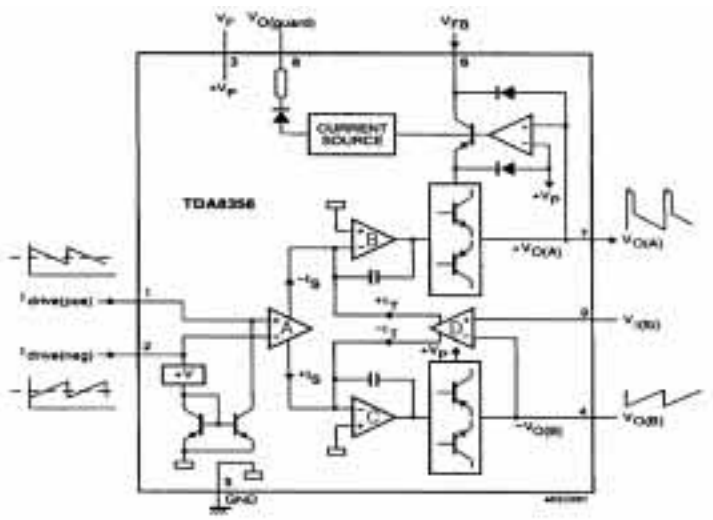
(1) General Description

The TDA8356 is power circuit for use in 90° and 110° color deflection systems for field frequencies of 50 to 120 Hz. The circuit provides a DC driven vertical deflection output circuit, operating as a high efficient class G system.

(2) Feature

- High efficient fully DC-coupled vertical output bridge circuit
- Vertical fly-back switch
- Guard circuit
- Protection against : - short circuit of the output pins (7 and 4)
  - short circuit of the output pins to Vp
- Temperature (thermal) protection
- High EMC immunity because of common mode inputs

(3) Block Diagram



(4) Pin Description

PIN	SYMBOL	DESCRIPTION
1	I drive (pos)	input power stage (positive); include Ii(sb) signal bias
2	I drive (neg)	input power stage (negative); include Ii(sb) signal bias
3	V p	operating supply voltage
4	V o(b)	output voltage B
5	GND	ground
6	V fb	input fly-back supply voltage
7	V o(a)	output voltage A
8	V o(guard)	guard output voltage
9	V I(fb)	input feedback voltage

TDA7056 (BTL AUDIO OUTPUT AMPLIFIER)

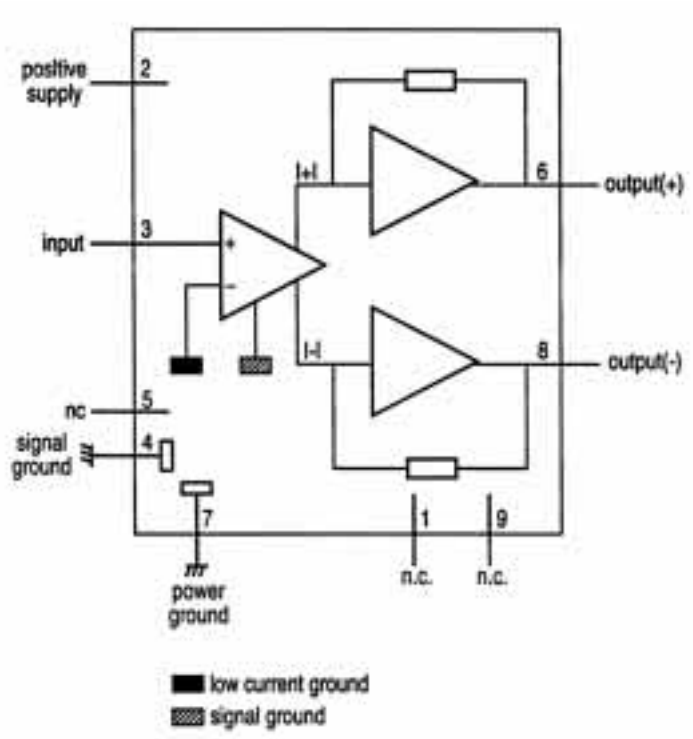
(1) Features

- No external components
- No switch-on/off clicks
- Good overall stability
- Low power consumption
- Short circuit proof
- ESD protected on all pins

(2) General Description

The TDA7056 is a mono output amplifier contained in a 9 pin medium power package. The device is designed for batteryfed portable mono recorders, radios and television.

(3)Block Diagram



(4)Pin Description

PIN	DESCRIPTION
1	n.c.
2	Vp
3	input (+)
4	signal ground
5	n.c.
6	output (+)
7	power ground
8	output (-)
9	n.c.

STR-S5707 (Hybrid IC for a Switching Regulator)

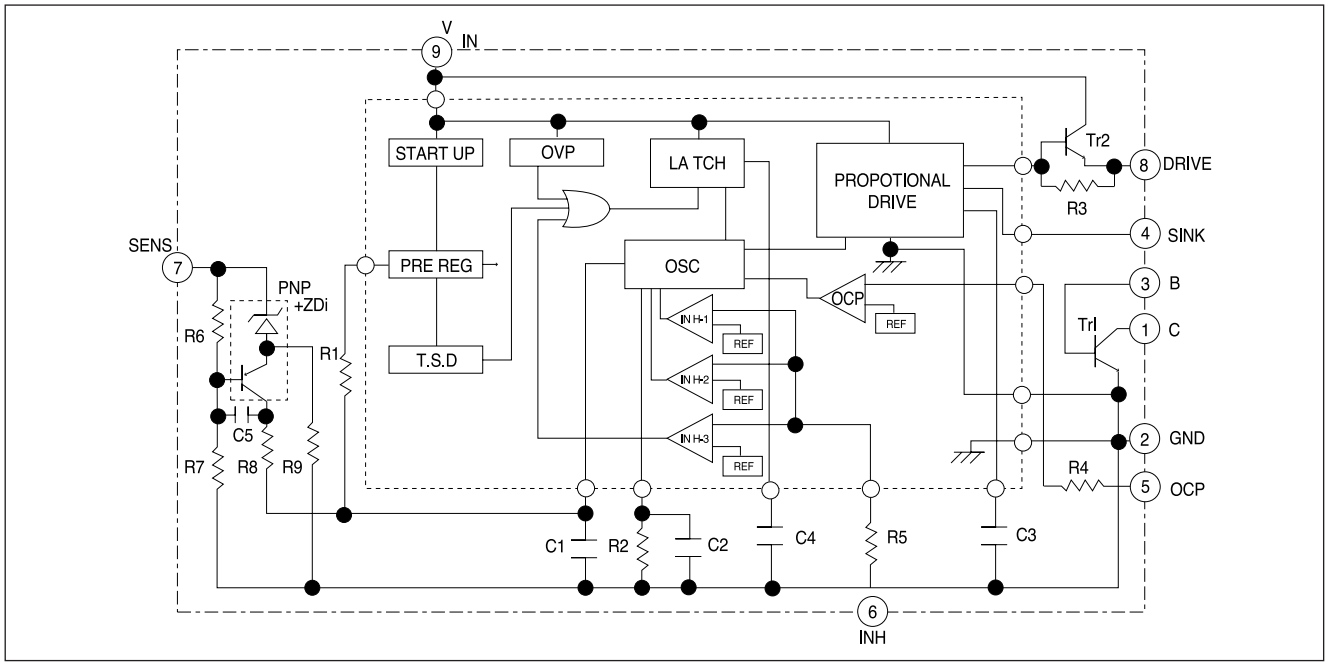
(1) General Description

The STR-S5707 is a Hybrid IC with a built in power transistor and a separate excitation control IC, designed for converter type switching mode power supply applications.
The IC is capable of quasi-resonant mode and requires small number of external component.

(2) Feature

- Small SIP isolated package : Resin sealed type (transfer mold)
- Lower power dissipation at a lighter load
- Many protection function : - Pulse-by-pulse over current protection
  - Over-voltage protection with a latch
  - Thermal protection with a latch
- These protection functions are incorporated and can be latched with an external signal.

(3) Block Diagram



(4) Pin Description

PIN	NAME	SYMBOL	DESCRIPTION
1	Collector	C	Collector of power Tr
2	Ground	GND	ground (Emitter of power Tr)
3	Base	B	Base of power Tr
4	Sink	SINK	Base current (IS) input
5	Over-current protection	OCP	over-current sensing signal input
6	Inhibit Latch	INH	input for synchronizing OFF time and latch circuit operation
7	Sensing	SENS	constant voltage control signal input
8	Drive	DRIVE	Base drive current (ID) output
9	Vin	VIN	supply voltage for control circuit

Electrical Characteristics of Control Part (Ta=25°)

Description	Terminal	Symbol	Rating			Unit
			MIN	TYP	MAX	
On-state Voltage	9-2	$V_{IN(ON)}$	7.6	8	8.4	V
Off-state Voltage	9-2	$V_{IN(OFF)}$	4.6	4.9	5.2	V
Operating Circuit Current	9-2	$I_{IN(ON)}$	15	—	28	mA
Stand-by Circuit Current	9-2	$I_{IN(OFF)}$	—	—	200	μA
On Time	—	T_{ON}	33	—	41	μsec
Off Time	—	T_{OFF}	45	—	55	μsec
OCP terminal Threshold Voltage	6-2	V_{OCP}	-1.12	-1	-0.88	V
INH terminal Threshold Voltage 1	8-2	V_{INH-1}	0.65	0.75	0.85	V
INH terminal Threshold Voltage 2	8-2	V_{INH-2}	—	1.4	2..0	V
INH terminal Threshold Voltage 3	8-2	V_{Latch}	3.2	5.1	5.8	V
OVP Operating Voltage	9-2	$V_{IN(OVP)}$	9.2	—	10.7	V
Latch Circuit Sustaining Current	9-2	I_H	—	—	500	μA
Latch Circuit Cancellation Voltage	9-2	$V_{IN(La.OFF)}$	2.5	3.1	—	V
MIC Thermal Shutdown Starting Temp	—	$T_{j(TSD)}$	125	150	—	—□
Fixed Reference Voltage	7-2	V_S	32.0±0.3			V
Temperature Coefficient of Reference Voltage	7-2	—	—	+2.5	—	mV/) V

Electrical Characteristics of Power Transistor Part(Trl) (Ta=25°)

Description	Terminal	Symbol	Rating			Unit
			MIN	TYP	MAX	
Collector Saturation Voltage	1-2	$V_{CE(sat)}$	—	—	0.4	V
Collector Cutoff Current	1-2	I_{CEX}	—	—	100	μA
Base-Emitter saturation voltage	3-2	$V_{BE(sat)}$	—	—	1.5	V
DC Current Gain	—	h_{FE}	29	—	61	—
Thermal Resistance	—	θj-F	—	—	1.3	□/W
Switching Time	1-2	ts	—	—	15	μsec
	1-2	tf	—	—	0.5	

TDA8138 (5.1V+12V regulator with Disable and Reset)

(1) General Description

The TDA8138 is a monolithic dual positive voltage regulator designed to provide fixed precision output voltages of 5.1V and 12V at currents up to 1A.

A internal reset cuicuit generates a reset pulse when the output 1 decrease below the regulated voltage value.

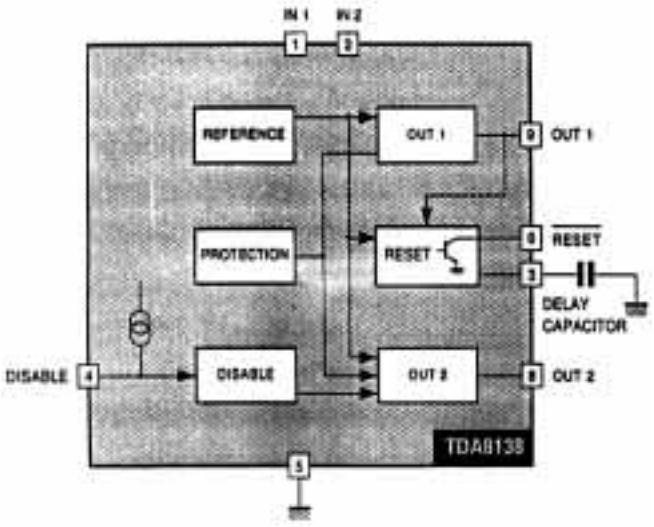
Output 2 can be disabled by TTL input.

Shot circuit and themal protections are included.

(2) Feature

- output currents up to 1A
- fixed precision Output 1 voltage 5.1V±2%
- fixed precision Output 2 voltage 12V±2%
- output 1 with Reset facility
- output 2 with Disable by TTL input
- short circuit protection at both outputs
- thermal protection
- low drop output voltage

(3) Block Diagram



(4) Pin Description

PIN	SYMBOL	DESCRIPTION
1	V in 1	input 1
2	V in 2	input 2
3	C e	Delay capacitor
4	V dis	disable
5	GND	ground
6	RST	reset
7		n.c
8	V out 2	output 2 (12V)
9	V out 1	output 1 (5.1V)

GMS30112-R098 (4-bit Single Chip Microcomputer for Remote control)

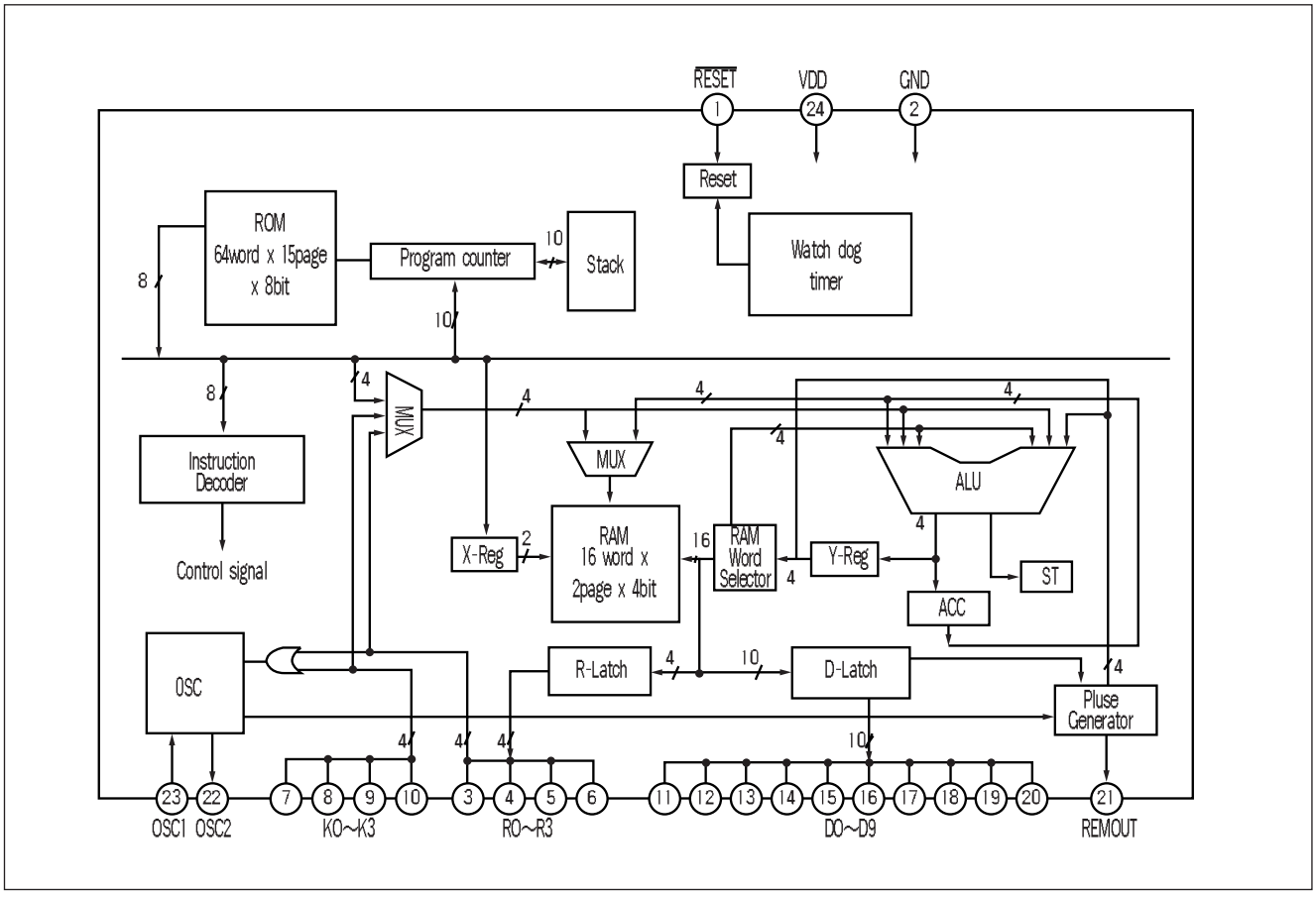
(1) General Description

The GMS30112-R098 is 4-bit single chip CMOS microcomputer.

(2) Feature

- program memory : 1024 bytes
- data memory : 32 x 4 bits
- 43 types of instruction set
- 3 levels of subroutine nesting
- 1 bit output port for a large current (REMOUT signal)
- operating frequency : 300kHz - 1 MHz
- instruction cycle : 12.5 usec @ 480kHz
- CMOS process (single 3.0 V power supply)
- stop mode (through internal instruction)
- released stop mode by key input (masked option)
- built in capacitor for ceramic oscillation circuit (masked option)
- built in a watch dog timer(WDT)
- low operating voltage (2.0 V to 4.0 V)

(3) Block Diagram



(4) Pin Description

PIN	SYMBOL	DESCRIPTION
1,2,3,4	K0,K1,K2,K3	4 bit input port with built in pull up resistor
5,6,7,8,9,10	D0,D1,D2,D3,D4,D5	10 bit output port which can be set or reset pin by pin independently. The output structure is N-channel open drain.
11	REMOUT	remote control signal output port which has high current driving capability
12	OSC 2	oscillator output
13	OSC 1	oscillator input
14	Vdd	2-4V power supply
15	RESET	reset signal input which is a low active
16	GND	ground
17,18,19,20	R0,R1,R2,R3	4 bit programmable I/O port

Circuit Description

Vision IF amplifier, AFC, video demodulator

The IF signal from the tuner is fed through a SAW filter to the differential IF input (pin 48 and 49).
The first IF stage consists of 3 AC-coupled amplifiers with a total gain control range of over 66 dB.
The reference carrier for the video demodulator is obtained by a PLL carrier regenerator
(eliminating notch filter compromises, as in reference tuned circuits for passive carrier regeneration).
Only an oscillator coil is needed(pin 3 and 4) that can be aligned via I2C-bus to the double IF frequency.

The AFC information is derived from the VCO control voltage of the IF-PLL
and can be read via I2C-bus.
Bit AFB toggles when the picture carrier is exactly at the desired IF frequency (= half the aligned IF-PLL frequency).
AFA is active in a window around this point.
For fast search-tuning applications this window can be increased by a factor 3 (AFW bit).

Tuner A.G.C.

The automatic gain control (A.G.C.) circuit operates on top sync level at negative modulated signals
or on peak white level at positive modulation, selected by MOD bit.
The tuner A.G.C. is controlled via pin 54.
The tuner A.G.C. take over point (T.O.P.) can be set over a wide range: 0.8 mVrms .. 80 mVrms
IF input signal amplitude.
The tuner AGC output may have to operate above Vcc of TDA8374.
Therefore pin 54 is an open collector output, that can operate from 0.3 up to Vcc+ 1 Volt
(at > 2 mA sink current)

PLL sound demodulator

The IF-video output at pin 6 (2Vpp) is fed through a sound bandpass filter and connected to the intercarrier sound IF input pin 1.
An alignment free PLL tunes itself to the sound carrier and demodulates it.
The non volume-controlled front-end audio signal can be obtained from the deemphasis pin 55 (amplitude 300 mVeff).

Source select switch

TDA8374 input switch can select one of the following sources ;

pin 13 front-end : CVBS l int
pin17 : CVBS 2 ext
pin 11.pinlO : Y s-vhs, C s-vhs

Selected signal is available at the CVBS output pin 38, in case of Y/C input Y+C are added.
It drive teletext and the TDA8395 SECAM add-on.
For S-VHS applications, the Y,C input can be selected, independent of the CVBS source switch.
TDA8374 Y,C inputs are selected, while the source switch outputs CVBS l int or CVBS 2 ext on CVBS out.

Horizontal synchronization and protection

The synchronization separator adapts its slicing level in the middle between top-sync and black level of the CVBS signal.
The separated synchronization pulses are fed to the first phase detector and to the coincidence detector.
The Φ-1 loop gain is determined by the components at pin 43 (C+RC).
The coincidence detector detects whether the horizontal line oscillator is synchronized to the incoming video.
The line oscillator is a VCO-type, running at twice the line frequency.
It is calibrated with the X-tal oscillator frequency of the colour decoder and has a maximum deviation of 2% of the nominal frequency, so no alignment is-needed.
Calibration is done at start up(the TDA8374 must first know what colour X-tals are connected, bits XA and XB) and after synchronization loss (Φ-1 coincidence detector “Sync Locked” bit SL).

The second phase detector Φ-2 locks the phase of the horizontal driver pulses at output pin 40 to the horizontal flyback pulse at input pin 41 .

This compensates for the storage time of the horizontal deflection transistor.
The Ø - 2 loop filter (C) is externally connected to pin 42.
The horizontal phase can be given a static off set via I2C-but (HSH “horizontal shift”)
A dynamic correction is possible by current feedback into the Ø - 2 loop filter capacitor.

To protect the horizontal deflection transistor, the ho rizontal drive is switched off immediately when a power failure (“ Power-On Reset “ bit POR) is detected.
The power failure may have corrupted the contents of the internal data registers, so the TDA8374 should be started up again.

The TDA8374 has a separate supply input (pin 37) that only used as a clean supply voltage for the horizontal oscillator circuits.

Vertical synchronization

The vertical sawtooth generator drives the vertical output.
It uses an external capacitor at pin 51 and a current reference resistor at pin 52.
The TDA8374 vertical drive has differential current outputs for DC-coupled vertical output stage, like the TDA8356 .
At TDA8356 input pins l and 2 this current is converted into a drive voltage via a resistor.

Geometry processing

With the TDA8374 is possible to implement automatic geometry alignment, because all parameters are adjusted via the I2C bus.
The deflection processor of the TDA8374 offers the fo11owing five controls;

- Horizontal shift
- Vertical slope.
- Vertical amplitude
- Vertical S-correction
- vertical shift

Colour decoder

The colour decoder contains an alignment-free X-tal oscillator, a dual killer circuit and colour difference demodulators.
Together with the TDA8395 SECAM add-on a multi standard PAL/SECAM/NTSC decoder can be built with automatic recognition.
Which standard can be decoded depends on the external Xtals used.
Two Xtal pins (34and 36) are present so normally no external switching is required.
The I.C. must be told which X-tals are connected (bits XA and XB).
This is important, because the X-tal frequency of the colour decoder is also used to calibrate many internal circuit.

The burst phase detector locks the Xtal oscillator with the chroma burst signal.
The phase detector operates during the burst key period only, to prevent disturbance of the PLL by the chroma signal.
Two gain modes provide:

- Good catching range when the PLL is not Locked.
- Low ripple voltage and good noise immunity once the PLL has locked

The killer circuit switches-off the R-Y and B-Y demodulators at very low input signal conditions (chroma burst amplitude).
A hysteresis prevents on/off switching at low, noisy signals.

Color standard	pin34	pin35	XA	XB
PAL4.43/SECAM + NTSC-4.43	none	4.43	1	0
PAL4.43/SECAM + NTSC-M	3.58	4.43	1	1

Integrated video filters

The TDA8374 has alignment-free internal luminance delay, chroma bandpass and chroma trap.
They are implemented as gyrator circuits tuned by tracking to the frequency of the chroma Xtal oscillator.
The chroma trap in the Y signal path is by-passed when Y/C input is selected (S-VHS).
For SECAM an extra luminance delay is build-in, for correct delay of the luminance signal.

RGB output and black current stabilization

The colour difference signals (R-Y, B-Y) are matrixed with the luminance signal (Y) to obtain the RGBout output signals (pins 21,20,29).
In the TDA8374 the matrix type automatically adapts to the decoded standard (NTSC,PAL) .
Linear amplifiers are used to interface external RGBrn signals (pins 24,25,26) from the SCART connector.
These signals overrule the internal RGB signals when the data insertion pin 26 (FBI) is switched to a level between 1.0V and 3.0V.

The contrast and brightness control and the peak white limiter operate on both internal and external RGB signals
R,G and B each have their own, independent gain control to compensate for the difference in phosphor efficiencies of the picture tube: so called “white point” adjustment.
The nominal amplitude is about 2V black to white, at nominal input signals and control settings.

TDA8374 has a black current stabilization loop, that automatically adjust the black level to the cut-off voltage of the picture tubes three gun cathodes.
Since no current is flowing when the voltage the cathode is equal to the cut-off voltage of the tube, the loop stabilizes at a very small gun current.
This “black current” of the three guns is measured internally and compared with a reference current, to adjust the black level of RGBout.
The black level loop is active during 4 lines at the end of the vertical blanking.
In the first line the leakage current is measured (max. acceptable 100 μA).
In the next three lines the black levels of the three guns are adjusted.
The nominal value of the ‘black current is 10 μA.
The ratio of the ‘black currents’ for the 3 guns tracks automatically with the white point adjustment, so the back-ground colour is the same as the adjusted white point.

At switch-on of the TV receiver the black current stabilization circuit is not yet active and RGBout are blanked.
Before the first measurement pulses appear, O.5 sec delay ensures that the vertical deflection is active, so the pulses will not be visible on the screen.
During the measuring lines RGBout will supply 4V pulses to the video output stages.
The TDA8374 waits until the black current feedback input (pin 18) exceeds 200 μA, which indicates that the picture tube is warm-up.
Then the black current stabilization circuit is active.
After a waiting time of about 1.0 sec, the blanking of RGBout is released.

Tuning

The AFC information of the TDA8374 is not available as an analogue voltage.
Automatic following (=frequency tracking, AFC) can be done via the I2C-bus by software.
The TDA8374 AFC window is typically 80 kHz wide.
This value is made higher than the 62.5 kHz tuning step, to prevent an automatic following loop from continuously adapting the tuning frequency..
With this AFC window ($\pm$40 kHz) the maximum tuning error is less than 62.5 kHz.
For high speed search-tuning-algorithms, the AFC window can be widened to 240 kHz via bit AFW.

TDA8395 SECAM decoder

The TDA8395 is an alignment-free SECAM colour decoder, including a Cloche filter, demodulator and line identification circuit.

The Cloche filter is a gyrator-capacitor type.
Its frequency is calibrated in the vertical retrace period.
The calibration reference(pin 1) is obtained from the TDA8374 color X-tal oscillator (pin 33).
Pin 7 is a decoupling for the Cloche reference.
The voltage change at this pin due to leakage currents should be lower than 10 mV, during field scan, resulting in a capacitor of minimal 100 nF.
Pin 8 is the reference capacitor for the PLL.
The voltage variation during field scan at this pin should be lower than 2 mV , resulting in a capacitor of 220 nF.

The sandcastle input (pin 15) is connected to TDA8374 pin 41 and is used for generation of the blanking periods and provides clock information for the identification circuit.
The CVBS source select output (TDA8374 pin 38) supplies SECAM chroma to pin 16 of the TDA8395.
This is demodulated by a PLL demodulator, that uses the reference frequency at pin l and a bandgap reference to obtain the desired demodulation characteristic.

If the digital line identification in theTDA8395 detects SECAM, pin 1 will sink a current of 150 (A out of TDA8374 SECAMref pin 33.
When the TDA8374 has not detected PAL or NTSC, it will respond by increasing the voltage at pin 33 from 1.5V to 5V.
Now the TDA8374 color difference outputs pin 30 and 29 are made high-ohmic and the TDA8395 output pin 9 and 10 are switched on.
These outputs will be disconnected and high-ohmic when no SECAM is detected for two frame periods, the decoder will be initialized before trying again.

SECAM-L and -L' application

For SECAM-L and L' the TDA8374 has to be switched to positive modulation via I2C-bus bit MOD.
SECAM-L' signals only occur in VHF band l and have their picture and sound carrier interchanged, compared to SECAM-L/PAL channels.

For SECAM-L' the IF picture carrier is situated at 34.2 MHz and the AM-sound carrier at 40.7MHz.
Therefore the IF-PLL reference has to be tuned away from 38.9 to 34.2 MHz.
This can be done via I2C-bus sub-address 15hex (IF-PLL).

The AM sound output is inserted at TDA8374 external audio input pin via the SCART plug.
When bit MOD selects positive modulation for SECAM-L/L', the TDA8374 automatically switches to external audio.

Base band delay line TDA4665

TDA4665 is an integrated double baseband delay line of 64 μS.
It couples to the TDA8374 and TDA8395 without any switches or alignments.
The TDA4665 consist of two main blocks:

- Two delay lines of 64 sec in switched capacitor technique
- Internal clock generation of 3 MHz, line locked to the sandcastle pulse

The TDA4665 operates according to the mode demanded by the colour transmission standard:

- For PAL it operates as geometric adder to satisfy the PAL demodulation requirements
- In NTSC mode it reduces cross-colour interference (comb-filtering)
- For SECAM it repeats the colour difference signal on consecutive horizontal scan lines.

A sandcastle pulse is connected to pin 5.
The top pulse voltage (should not exceed 5 V) can be directly coupled to the 5 V sandcastle output of the TDA8374.

The R-Y and B-Y colour difference signals (from TDA8374 pins 30 and 29) are AC-coupled and clamped by the input stages at pins 16 and 14.
An internal 6 MHz Current controlled oscillator is line locked via a PLL to the sandcastle pulse at pin 5.
This clock drives the delay lines to obtain the required 64 μsec.
Sample and hold low pass filters supress the clock signal.
The original and the delayed signals are added, buffered and fed to the output pins 11 and 12.
These are AC-coupled to the R-Y and B-Y colour difference input pin 32 and 31 of TDA8374.

The TDA4665 needs a 5 V supply voltage on pin l for the digital part and on pin 9 for the analog part.

TDA8356 vertical deflection.

The TDA8356 is a vertical deflection circuit.
It can be used in 90 deflection systems with frame frequencies from 50 up to 120 Hz
With its bridge configuration the deflection output can be DC coupled with few external components.
Only a supply voltage for the scan and a second supply for the flyback are needed.
The TDA8356 can drive max.2A.

The vertical drive currents of TDA8374 pins 47 and 46 are connected to input pins l and 2 of the TDA8356.
The currents are converted into a voltage by a resistor between pins 1 and 2.
Pin2 is on a fixed DC level (internal bias voltage) and on pin l the drive voltage can be measured (typical 1.8 Vpp).

The drive voltage is amplified by 'A' and fed to two amplifiers 'B' and 'C', one is inverting and the other is a non inverting amplifier.
The outputs (pins 4 and 7) are connected to the series connection of the vertical deflection coil and feedback resistor .
The voltage across feed back resistor is fed via pin 9 to correction amplifier 'D', to obtain a deflection current which is proportional to the drive voltage.

The supply voltage for the TDA8356 is 16V at pin 3.
The flyback generator has a separate supply voltage of 45V on pin 6.

The guard pulse is useful to synchronize OSD.

Horizontal deflection

The circuit contains horizontal drive, line output transformer.
The horizontal driver pulses from the TDA8374 are amplified in the horizontal drive circuit, to get sufficient base-drive current for the high voltage switching transistor Q401.
During the horizontal scan period(=52 μs) Q401 will conduct, and a sawtooth current flows from +110/123V through the primary winding of the FBT to ground.
After this time Q401 is switched off and the energy stored in the FBT during the scan period will be transformed to the flyback capacitor C410.
This energy transfer will take place in a cosine shape because the primary of the FBT and C410 from a resonant circuit.
The time the energy is transferred from FBT to C410 and back to the FBT, is called the flyback time and will take place in about 12μs.
The flyback peak voltage is about 8 times the scan voltage.

In series with the horizontal deflection coil there is a (damped) linearity corrector coi1.
During the scan there is some loss in the resistance of the deflection coi1.
In the first part of a line the linearity corrector stores some energy in a permanent magnet until it is saturated.
This improves the linearity of the horizontal scan speed.
The required S correction for the picture tube can be adjusted with the value of C411.

The beam current limiting information (BeamCurr) is derived from the foot of the H.V winding of the FBT.

This is connected via resistor to +8V.
As the beam current increase, the voltage on line BeamCurr decreases.
BeamCurr is damped by a integration filter before it is fed back to TDA8374 pin 22.
The TDA8374 will decrease the contrast (and eventually the brightness) to limit the average beam current.

Video amplifiers

Three TDA6106Q integrated video amplifiers drive cathode of the picture tube directly.
They are protected against CRT flashover discharges and ESD (electro static discharge).

The three video amplifiers, have a beam current output I black, used by the TDA8374 black current loop to control the black level on the cathodes.
The outputs can be connected together because the black current 1oop sequentially controls the black level for each cathode.

The amplification of the TDA6106Q is set by the resistors between pin 3 and 9 and between pin 3 (negative-input) and the TDA8374 output.
There are no alignment any more on the CPT panel, because of the automatic black current stabilization and because the white point adjustment can be done in the TDA8374 via I2C bus.

Power Supply STR-S5707

(1) VIN terminal, start-up circuit

A start-up circuit is to start and stop a operation of a control IC by detecting a voltage appearing at a VIN terminal (pin-9).
At start up of a power supply, when a voltage at the VIN terminal reaches to 8V (typical) by charging up C807 by the function of a start-up resistor, R803, a control circuit starts operating by the function of the start-up circuit.
After the control circuit starts its operation, power source is obtained by smoothing voltage appearing at winding of pin6-7 of T801.

(2) Oscillator, F/B terminal voltage (Pin 7)

A oscillator generates pulse signals which turns a power transistor on and off by making use of charge and discharge of C1 and C2 incorporated in the Hybrid IC.
Constant voltage control of a switch-mode power supply is performed by changing both ON-time and OFF-time except when the load is light (ex. remote control stand-by mode of TVs).
The ON-time is controlled by changing a current charged by C1, which is as the result of that the detection winding of pin5-7 of T801, which detects a change of voltage in a secondary side, connected to the sensing terminal (Pin 7) has the current in accordance with an output signal from an output voltage detection circuit (an error amplifier) built in.
As an AC input voltage to the power supply gets the higher and a load current the smaller, the current flowing to the SENS terminal gets the larger, and the ON-time gets the shorter.

(3) Function of INH terminal (Pin 6), control of OFF-time

Signal to the INH terminal is used as inputs to COMP.1 and COMP.2 inside of the control IC.
A threshold voltage of COMP.1, VTH1 is set at 0.75V (Ta=25°) and an input signal to a drive circuit becomes almost 0V (the power transistor is in OFF mode) when a voltage at the INH terminal reaches the VTH1.
A threshold voltage of COMP.2, VTH2, is set at 1.5V (Ta=25°).
When the INH terminal voltage reaches VTH2, an output from COMP.2 reverses (the power transistor is in on mode).

* Quasi-resonant operation

By inputting the voltage of winding of pin6-7 of T801 which is synchronized with the energy discharge time of a secondary winding, pin14(or 15)-16 of T801, to the INH terminal through D805 and R809, quasi-resonant operation can be achieved.

When the power transistor turns off and a voltage higher than VTH2 is applied to the INH terminal, C3 immediately discharges and then starts charging again.
Even after the discharge of energy of a secondary winding is completed, VINH does not immediately increases.
When it gets lower than VTH1, the transistor turns on.

* Stand-By Mode

While being in remote control stand-by mode, the output voltage is kept on providing to the secondary side and the power transistor operates at A class mode.

By connecting INH terminal (Pin 6) to the GND, the OFF-time of the power transistor is fixed at set time (T_{OFF} = 50usec at Ta = 25 ℃) of the built-in oscillator, and only ON-time changes depending on input and output conditions of the power supply.
Therefore, it enables to hold an oscillation frequency in light mode below 20KHz (typical).

(4) Drive circuit

The STR-S5707 applies the proportional drive system in order to minimize turn-on and saturation loss, and storage time.

(5) OCP (over-current protection) function

Over-current protection is performed pulse by pulse by directly detecting collector current of the power transistor.
Detecting voltage is set to -1V below a reference point of GND (ground).

(6) Latch circuit

It is a circuit which sustains an output from the oscillator low and stops operation of the power supply when over-voltage protection (OVP) circuit and thermal shutdown (TSD) circuit are in operation.
As the sustaining current of the latch circuit is 500 μA maximum when VIN terminal voltage is 4V, the power supply circuit sustains the off state as long as current of 500 μA minimum flows to V_{IN} terminal from a start-up resistor.
In order to prevent a malfunction to be caused by a noise and so on, delay time is provided by C1 incorporated in the IC and, therefore, the latch circuit operates when the OVP or TSD circuit is in operation, or an external signal input is provided for about 10 μsec or longer.
In addition, even after the latch circuit start operating, the constant voltage regulator (Reg) circuit is in operation and the circuit current is at high level.
As a result, V_{IN} terminal voltage rapidly decreases.
When VIN terminal voltage becomes lower than the shutdown voltage, $V_{IN(OFF)}$ (4.9V typical), it starts increasing as the circuit current is below 500μA.
When it reaches the ON-state voltage, $V_{IN\ (ON)}$ (8V typical), VIN terminal voltage starts decreasing because the circuit current increases again.
When the latch circuit is on, VIN terminal voltage increases and decreases within the range from 4.9V typical to 8V typical and is prevented from abnormally rising.
Cancellation of the latch is done by decreasing VIN terminal voltage below 3.3V.
The power supply can be restarted after disconnecting an AC input to the power supply once.

(7) Thermal shutdown circuit

It is a circuit to trigger the latch circuit when the frame temperature of the IC exceeds 150℃(typical).
Although the temperature is actually sensed at the control chip, it works against overheating of the power transistor as the power transistor and the control IC are mounted on the same lead frame.

(8) Over-voltage protection circuit

It is a circuit to trigger the latch circuit when VIN terminal voltage exceeds 11V (typical).

Although it basically functions as protection of VIN terminal against over-voltage, since VIN terminal is usually supplied from the drive winding of the transformer and the voltage is proportional to the output voltage, it also functions against the over-voltage of secondary output which causes when the control circuit opens or in some other events.

Electrical Parts List

⚠ **Components marked with this symbol must only be replaced by a component having identical physical characteristics.**

MODEL : C14M7E

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
ZZ100	48BRM01A01	TRANSMITTER REMOCON	RM-01A01	
00030	47P7500001	BATTERY	AAM 1.5V	
ZZ131	58G0000084	COIL DEGAUSSING	DC-1450	⚠
ZZ132	48519A4610	CRT GROUND AS	1401H-1015-1P	
V901	4859606240	CRT	A34EAC01X-AT1625/31	⚠
A001	4859801493	PCB MAIN	330X246 D1B	
SP01	4858306810	SPEAKER	3W 16 OHM F2035C03-3	
C102	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C103	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP	
C104	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	
C105	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	
C106	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C107	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	
C108	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C109	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP	
C110	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C111	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C115	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	
C116	CCZF1E223Z	C CERA	25V F 0.022MF Z (AXIAL)	
C117	CMXM2A473J	C MYLAR	100V 0.047MF J (TP)	
C118	CZCH1H100J	C CERA	50V CH 10PF J (AXIAL)	
C120	CEXD1H109F	C ELECTRO	50V RND 1MF (5X11) TP	
C301	CMXB2A104J	C MYLAR	100V EU 0.1MF J (TP)	
C302	CCZB1H181K	C CERA	50V B 180PF K (AXIAL)	
C303	CCZB1H181K	C CERA	50V B 180PF K (AXIAL)	
C304	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C306	CBXF1H104Z	C CERA SEMI	50V F 0.1MF Z (TAPPING)	
C308	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP	
C309	CEXF2A470V	C ELECTRO	100V RSS 47MF (10X16) TP	
C311	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)	
C312	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C401	CBZR1C472M	C CERA	16V Y5R 4700PF M (AXIAL)	
C402	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	
C403	CBZR1C222M	C CERA	16V Y5R 2200PF M (AXIAL)	
C404	CCZB1H181K	C CERA	50V B 180PF K (AXIAL)	
C406	CCXB1H222K	C CERA	50V B 2200PF K (TAPPING)	
C409	CCXB3D471K	C CERA	2KV B 470PF K (TAPPING)	⚠
C410	CMYH3C622J	C MYLAR	1.6KV BUP 6200PF J	⚠
C411	CMYE2D514J	C MYLAR	200V PU 0.51MF J	⚠

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
C412	CEXF2C339V	C ELECTRO	160V RSS 3.3MF (8X16) TP	
C414	CCXB2H471K	C CERA	500V B 470PF K (TAPPING)	
C415	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C416	CCXB2H471K	C CERA	500V B 470PF K (TAPPING)	
C417	CEXF2E330V	C ELECTRO	250V RSS 33MF (13X25) TP	
C418	CCZF1E223Z	C CERA	25V F 0.022MF Z (AXIAL)	
C419	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
C420	CXSL2H470J	C CERA	500V SL 47PF J (TAPPING)	
C421	CEXF2C101V	C ELECTRO	160V RSS 100MF (16X25) TP	
C422	CCXB2H471K	C CERA	500V B 470PF K (TAPPING)	
C423	CEXF1E101V	C ELECTRO	25V RSS 100MF (6.3X11) TP	
C424	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP	
C425	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
C501	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)	
C502	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
C503	CCZF1E223Z	C CERA	25V F 0.022MF Z (AXIAL)	
C504	CCZF1E223Z	C CERA	25V F 0.022MF Z (AXIAL)	
C505	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
C506	CCZF1H473Z	C CERA	50V F 0.047MF Z (AXIAL)	
C507	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)	
C508	CCZF1H473Z	C CERA	50V F 0.047MF Z (AXIAL)	
C509	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C510	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C511	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C512	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	
C514	CCZB1H151K	C CERA	50V B 150PF K (AXIAL)	
C516	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP	
C517	CBZR1C472M	C CERA	16V Y5R 4700PF M (AXIAL)	
C518	CZCH1H180J	C CERA	50V CH 18PF J (AXIAL)	
C519	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)	
C520	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)	
C521	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C522	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C523	CCZF1E223Z	C CERA	25V F 0.022MF Z (AXIAL)	
C524	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)	
C525	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
C526	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C527	CMXB1H224J	C MYLAR	50V EU 0.22MF J (TP)	
C528	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C529	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
C530	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP	
C531	CCZF1H473Z	C CERA	50V F 0.047MF Z (AXIAL)	
C532	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
C533	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C604	CCZB1H221K	C CERA	50V B 220PF K (AXIAL)	
C605	CZSL1H560J	C CERA	50V SL 56PF J (AXIAL)	
C606	CZSL1H680J	C CERA	50V SL 68PF J (AXIAL)	
C607	CEXD1H100F	C ELECTRO	50V RND 10MF (8X11.5) TP	
C609	CCZB1H181K	C CERA	50V B 180PF K (AXIAL)	
C610	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP	
C611	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
C612	CBZR1C392M	C CERA	16V Y5R 3900PF M (AXIAL)	
C613	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C614	CCZF1E223Z	C CERA	25V F 0.022MF Z (AXIAL)	
C615	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP	
C616	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C617	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C618	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C619	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C620	CEXD1H229F	C ELECTRO	50V RND 2.2MF (5X11) TP	
C621	CEXD1H229F	C ELECTRO	50V RND 2.2MF (5X11) TP	
C622	CEXD1H229F	C ELECTRO	50V RND 2.2MF (5X11) TP	
C623	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP	
C624	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C625	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C626	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C631	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C632	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C633	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C634	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C635	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C636	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C637	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C638	CEXD1H229F	C ELECTRO	50V RND 2.2MF (5X11) TP	
C639	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)	
C640	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)	
C641	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)	
C642	CEXF1E470V	C ELECTRO	25V RSS 47MF (5X11) TP	
C702	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
C703	CZSL1H240J	C CERA	50V SL 24PF J (AXIAL)	
C704	CZSL1H240J	C CERA	50V SL 24PF J (AXIAL)	
C705	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C706	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP	
C709	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C710	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	
C711	CMXM2A104J	C MYLAR	100V 0.1MF J (TP)	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
C712	CEXF1H470V	C ELECTRO	50V RSS 47MF (6.3X11) TP	
C713	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)	
C714	CMXB1H333J	C MYLAR	50V EU 0.033MF J (TP)	
C715	CMXB1H224J	C MYLAR	50V EU 0.22MF J (TP)	
C716	CMXB1H333J	C MYLAR	50V EU 0.033MF J (TP)	
C717	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C718	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
C720	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C721	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
C722	CXCH1H390J	C CERA	50V CH 39PF J (TAPPING)	
C723	CXCH1H360J	C CERA	50V CH 36PF J (TAPPING)	
C724	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C725	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP	
C726	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP	
C727	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C801	CL1JB3474K	C LINE ACROSS	AC250V 0.47MF U/C/SNDF/SV	⚠
C803	CCXE2H472P	C CERA	500V E 4700PF P (TAPPING)	⚠
C804	CCXE2H472P	C CERA	500V E 4700PF P (TAPPING)	⚠
C805	CEYM2G121T	C ELECTRO	400V LWF 120MF (25X50)	⚠
C806	CCYR3D471K	C CERA	HIKR 2KV 470PF K 125C	⚠
C807	CEXF1E221V	C ELECTRO	25V RSS 220MF (8X11.5) TP	
C808	CEXF2A100V	C ELECTRO	100V RSS 10MF (6.3X11) TP	
C809	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP	
C810	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)	
C811	CEXF1E221V	C ELECTRO	25V RSS 220MF (8X11.5) TP	
C812	CH1FFE472M	C CERA AC	4.0KV 4700PF M KD AC250V	
C817	CCYB3D561K	C CERA	2KV B 560PF K	⚠
C818	CEXF2C101V	C ELECTRO	160V RSS 100MF (16X25) TP	
C821	CEXF1E471V	C ELECTRO	25V RSS 470MF (10X16) TP	
C823	CEXF1E102C	C ELECTRO	25V RUS 1000MF (13X20) TP	
C824	CEXF1E101C	C ELECTRO	25V RUS 100MF (6.3X11) TP	
C825	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C826	CEXF1C470C	C ELECTRO	16V RUS 47MF (5X11) TP	
C827	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C829	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C830	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP	
C831	CCXF1H103Z	C CERA	50V F 0.01MF Z (TAPPING)	
C832	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)	
C835	CBZF1H104Z	C CERA SEMI	50V F 0.1MF Z (AXIAL)	
C904	CMXL2E104K	C MYLAR	250V MEU 0.1MF K	
C905	CMXL2E104K	C MYLAR	250V MEU 0.1MF K	
C906	CMXL2E104K	C MYLAR	250V MEU 0.1MF K	
C907	CCXB1H561K	C CERA	50V B 560PF K (TAPPING)	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
C908	CCXB1H561K	C CERA	50V B 560PF K (TAPPING)	
C909	CCXB1H561K	C CERA	50V B 560PF K (TAPPING)	
C911	CCYB3D472K	C CERA	2KV B 4700PF K	
D101	D1N4148—-	DIODE	1N4148 (TAPPING)	
D401	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D402	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D403	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D404	D1N4148—-	DIODE	1N4148 (TAPPING)	
D405	D1N4148—-	DIODE	1N4148 (TAPPING)	
D406	D1N4148—-	DIODE	1N4148 (TAPPING)	
D409	DBY228——	DIODE	BY228 (TAPPING)	⚠
D420	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D421	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D422	DUZ33B——	DIODE ZENER	UZ-33B	
D423	DUZ33B——	DIODE ZENER	UZ-33B	
D424	D1N4148—-	DIODE	1N4148 (TAPPING)	
D501	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D502	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D503	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D504	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D505	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D506	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D507	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D508	DMTZ5R6B—	DIODE ZENER	MTZ 5.6-B (TAPPING)	
D509	D1N4148—-	DIODE	1N4148 (TAPPING)	
D510	D1N4148—-	DIODE	1N4148 (TAPPING)	
D511	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D512	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D513	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D601	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D602	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D603	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D604	DUZ5R1BM—	DIODE ZENER	UZ-5.1BM	
D701	D1N4148—-	DIODE	1N4148 (TAPPING)	
D702	D1N4148—-	DIODE	1N4148 (TAPPING)	
D703	D1N4148—-	DIODE	1N4148 (TAPPING)	
D704	D1N4148—-	DIODE	1N4148 (TAPPING)	
D705	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D706	DKLR114L—	LED	KLR114L	
D707	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D708	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D709	DUZ6R2BM—	DIODE ZENER	UZ-6.2BM 6.2V	
D801	D1S1888—-	DIODE	1S1888 (TAPPING)	⚠

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
D802	D1S1888—-	DIODE	1S1888 (TAPPING)	⚠
D803	D1S1888—-	DIODE	1S1888 (TAPPING)	⚠
D804	D1S1888—-	DIODE	1S1888 (TAPPING)	⚠
D805	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D806	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D807	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D808	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D811	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D812	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
D813	DBYV95C—-	DIODE	BYV95C (TAPPING)	⚠
F801	5FSCB4022R	FUSE CERA	SEMKO F4AH 4A 250V MF51	⚠
F801A	4857415001	CLIP FUSE	PFC5000-0702	⚠
F801B	4857415001	CLIP FUSE	PFC5000-0702	⚠
I301	1TDA8356—	IC VERTICAL	TDA8356	
I301A	4857024617	HEAT SINK	AL EX	
I301B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN	
I501	1TDA8374A-	IC VCD	TDA8374A	
I502	1TDA4665V4	IC DELAY	TDA4665/V4	
I601	1TDA7056—	IC	TDA7056	
I701	1DW370M3—	IC MICOM	DW370M3	
I702	1UPC574J—	IC	UPC574J	
I703	124LC08B—	IC MEMORY	24LC08B	
I704	1TFMW5380-	IC PREAMP	TFMW5380	
I801	1STRS5707-	IC POWER	STR-S5707	⚠
I802	1TDA8138—	IC REGULATOR	TDA8138	
I802A	4857025401	HEAT SINK	A1050P-H24 T2	
I802B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN	
I803	1KA7808—-	IC REGULATOR	KA7808	
I901	1TDA6106Q-	IC AMP	TDA6106Q	
I902	1TDA6106Q-	IC AMP	TDA6106Q	
I903	1TDA6106Q-	IC AMP	TDA6106Q	
J006	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J007	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J008	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J009	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J012	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J013	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J014	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J015	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J016	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J018	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J019	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J020	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
J022	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J023	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J024	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J025	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J027	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J028	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J030	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J031	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J032	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J033	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J034	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J035	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J036	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J037	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J038	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J039	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J040	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J042	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J044	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J045	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J046	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J047	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J048	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J049	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J050	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J051	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J052	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J053	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J054	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J057	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J058	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J059	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J060	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J061	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J062	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J064	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J065	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J066	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J067	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J068	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J069	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J070	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J072	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
J074	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J075	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J076	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J077	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J080	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J081	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J082	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J083	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J084	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J085	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J086	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J087	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J088	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J089	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J090	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J091	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J093	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J094	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J095	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J096	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J097	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J098	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J099	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J100	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J101	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J102	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J106	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J109	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J111	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J112	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J113	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J115	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J116	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J117	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J118	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J119	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J123	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J124	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J125	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J126	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J127	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J128	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
J129	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
J131	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
JH01	4859102130	JACK EARPHONE	YSC-1537	
JP06	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
JP08	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
JP09	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
JS01	4859200401	SOCKET RGB	SR-21A1 (ANGLE TYPE)	
JS02	4859108350	JACK PIN BOARD	YSC02P-4100-14A	
L101	58C9780027	COIL CHOKE	TRF-1201B (0.97 UH)	
L103	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L104	58E0000S37	COIL AFT	TRF-A001	
L301	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L302	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L401	5CPZ109M02	COIL PEAKING	1UH M (AXIAL 3.5MM)	
L402	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
L405	58H0000016	COIL H-LINEARITY	L-102 (102UH)	
L406	58C9430599	COIL CHOKE	AZ-9004Y(94MH)	
L501	5CPZ569K02	COIL PEAKING	5.6UH K (AXIAL 3.5MM)	
L601	5MC0000100	COIL BEAD	MD-5 (HC-3550)	
L602	5MC0000100	COIL BEAD	MD-5 (HC-3550)	
L604	5CPZ829K02	COIL PEAKING	8.2UH K (AXIAL 3.5MM)	
L605	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L606	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L607	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L608	58C6R8J067	COIL CHOKE	TRF-1015C (6.8UH J)	
L609	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
L610	58C6R8J067	COIL CHOKE	TRF-1015C (6.8UH J)	
L701	5CPZ689K02	COIL PEAKING	6.8UH K (AXIAL 3.5MM)	
L801	5PLF24A1—	FILTER LINE	LF-24A1	⚠
L804	5MC0000100	COIL BEAD	MD-5 (HC-3550)	
L805	5CPZ100K04	COIL PEAKING	10UH 10.5MM K (LAL04TB)	
LP02	5MC0000100	COIL BEAD	MD-5 (HC-3550)	
LP04	5MC0000100	COIL BEAD	MD-5 (HC-3550)	
M351	97P2316600	HOLDER AC CORD	NYLON66 UL/CSA	
M352	4853530901	HOLDER LED	HIPS BK	
M721	4857235802	SHIELD CASE	“SPTH-C (“”B+C””) HOLE”	
P101	485923162S	CONN WAFER	YW025-03 (STICK)	
P401	4859240120	CONN WAFER	YFW500-06	
P401A	4850706S20	CONN AS	35135-0620+35719+ULW=350	
P501	485923522S	CONN WAFER	YW025-09 (STICK)	
P501A	4850709S02	CONN AS	YH025-09+YST025+ULW=300	
P601	485923162S	CONN WAFER	YW025-03 (STICK)	
P801	4859242220	CONN WAFER	YFW800-02	
P802	4859242220	CONN WAFER	YFW800-02	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
P904	4859262120	CONN WAFER	YFW800-01	
P906	4859275220	CONN WAFER	YF254-05R (ANGLE)	
PA601	4850703S03	CONN AS	YH025-03+YST025+ULW=200	
PWC1	4859903110	CORD POWER AS	CW4232+BL102NG+TUBE=2500	⚠
Q301	TKTC3198Y-	TR	KTC3198Y	
Q401	T2SD2499—	TR	2SD2499	⚠
Q402	T2SD1207T-	TR	2SD1207-T (TAPPING)	⚠
Q403	TKTA1266Y-	TR	KTA1266Y (TP)	
Q501	TKTC3198Y-	TR	KTC3198Y	
Q502	TKTC3198Y-	TR	KTC3198Y	
Q503	TKTC3198Y-	TR	KTC3198Y	
Q504	TKTA1266Y-	TR	KTA1266Y (TP)	
Q505	TKTC3198Y-	TR	KTC3198Y	
Q601	TKTC3198Y-	TR	KTC3198Y	
Q602	TKTC3198Y-	TR	KTC3198Y	
Q603	TKTC3198Y-	TR	KTC3198Y	
Q604	TKTC3198Y-	TR	KTC3198Y	
Q701	TKTA1266Y-	TR	KTA1266Y (TP)	
Q704	TKTC3202Y-	TR	KTC3202Y (TP)	
Q705	TKTC3198Y-	TR	KTC3198Y	
Q706	TKTC3198Y-	TR	KTC3198Y	
Q707	TKTC3198Y-	TR	KTC3198Y	
Q708	TKTA1266Y-	TR	KTA1266Y (TP)	
Q709	TKTA1266Y-	TR	KTA1266Y (TP)	
Q710	TKTA1266Y-	TR	KTA1266Y (TP)	
Q711	TBS170——	FET	BS170	
Q801	TKTC3198Y-	TR	KTC3198Y	
Q802	TKTC3198Y-	TR	KTC3198Y	
Q803	TKTC3198Y-	TR	KTC3198Y	
Q804	TKTC3198Y-	TR	KTC3198Y	
R106	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J	
R107	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	
R108	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
R109	RD-AZ183J-	R CARBON FILM	1/6 18K OHM J	
R110	RD-AZ182J-	R CARBON FILM	1/6 1.8K OHM J	
R111	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J	
R112	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J	
R301	RD-AZ393J-	R CARBON FILM	1/6 39K OHM J	
R302	RD-AZ182J-	R CARBON FILM	1/6 1.8K OHM J	
R304	RD-4Z189J-	R CARBON FILM	1/4 1.8 OHM J	
R305	RD-4Z189J-	R CARBON FILM	1/4 1.8 OHM J	
R307	RS02Z271J-	R M-OXIDE FILM	2W 270 OHM J (TAPPING)	
R308	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
R309	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J	
R310	RD-4Z473J-	R CARBON FILM	1/4 47K OHM J	
R311	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R312	RD-AZ479J-	R CARBON FILM	1/6 4.7 OHM J	
R401	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R402	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J	
R403	RD-AZ479J-	R CARBON FILM	1/6 4.7 OHM J	
R404	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J	
R405	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R406	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J	
R408	RS02Z561J-	R M-OXIDE FILM	2W 560 OHM J (TAPPING)	
R409	RS01Z103J-	R M-OXIDE FILM	1W 10K OHM J (TAPPING)	
R410	RD-2Z399J-	R CARBON FILM	1/2 3.9 OHM J	
R411	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
R412	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
R413	RD-4Z154J-	R CARBON FILM	1/4 150K OHM J	
R414	RD-4Z273J-	R CARBON FILM	1/4 27K OHM J	
R415	RF01Z478J-	R FUSIBLE	1W 0.47 OHM J (TAPPING)	⚠
R416	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J	
R417	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J	
R418	RD-AZ124J-	R CARBON FILM	1/6 120K OHM J	
R420	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
R421	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R501	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R502	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R503	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R504	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J	
R505	RD-AZ470J-	R CARBON FILM	1/6 47 OHM J	
R506	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R507	RD-4Z109J-	R CARBON FILM	1/4 1 OHM J	
R508	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R509	RD-AZ121J-	R CARBON FILM	1/6 120 OHM J	
R510	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R511	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R512	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R513	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R514	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J	
R515	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R516	RD-AZ564J-	R CARBON FILM	1/6 560K OHM J	
R517	5CPZ569K02	COIL PEAKING	5.6UH K (AXIAL 3.5MM)	
R518	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R519	RD-AZ470J-	R CARBON FILM	1/6 47 OHM J	
R520	RD-AZ394J-	R CARBON FILM	1/6 390K OHM J	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
R521	RD-AZ513J-	R CARBON FILM	1/6 51K OHM J	
R524	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J	
R525	RD-AZ121J-	R CARBON FILM	1/6 120 OHM J	
R526	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J	
R527	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
R528	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R529	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R530	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
R531	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
R532	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
R533	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
R534	RD-AZ750J-	R CARBON FILM	1/6 75 OHM J	
R535	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R536	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R537	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R538	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R539	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R540	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R541	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J	
R542	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J	
R543	RD-AZ151J-	R CARBON FILM	1/6 150 OHM J	
R601	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J	
R602	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J	
R603	RD-AZ681J-	R CARBON FILM	1/6 680 OHM J	
R604	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J	
R605	RD-AZ270J-	R CARBON FILM	1/6 27 OHM J	
R606	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J	
R607	RD-AZ113J-	R CARBON FILM	1/6 11K OHM J	
R608	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R609	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R610	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R611	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
R612	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J	
R613	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J	
R614	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J	
R615	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R616	RD-4Z221J-	R CARBON FILM	1/4 220 OHM J	
R617	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J	
R618	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J	
R619	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J	
R620	RD-AZ221J-	R CARBON FILM	1/6 220 OHM J	
R621	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R622	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
R623	RD-4Z221J-	R CARBON FILM	1/4 220 OHM J	
R624	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J	
R639	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J	
R701	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R702	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J	
R703	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J	
R704	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R705	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R706	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R707	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R708	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R709	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R710	RD-AZ100J-	R CARBON FILM	1/6 10 OHM J	
R711	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	
R714	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
R715	RD-AZ912J-	R CARBON FILM	1/6 9.1K OHM J	
R716	RD-AZ823J-	R CARBON FILM	1/6 82K OHM J	
R717	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R718	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R719	RD-4Z103J-	R CARBON FILM	1/4 10K OHM J	
R720	RS02Z562J-	R M-OXIDE FILM	2W 5.6K OHM J (TAPPING)	
R721	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J	
R722	RD-AZ822J-	R CARBON FILM	1/6 8.2K OHM J	
R723	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J	
R724	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
R725	RD-AZ913J-	R CARBON FILM	1/6 91K OHM J	
R727	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R728	RD-4Z100J-	R CARBON FILM	1/4 10 OHM J	
R729	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	
R730	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	
R731	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J	
R732	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R733	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R734	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R735	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R736	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R737	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R738	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
R739	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
R740	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J	
R741	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R743	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R744	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
R745	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R746	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J	
R748	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J	
R749	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R750	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J	
R751	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J	
R753	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	
R754	RS02Z562J-	R M-OXIDE FILM	2W 5.6K OHM J (TAPPING)	
R755	RD-AZ109J-	R CARBON FILM	1/6 1 OHM J	
R756	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R757	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J	
R759	RD-AZ391J-	R CARBON FILM	1/6 390 OHM J	
R760	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R761	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R762	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R801	DEC180M290	POSISTOR	ECPCC180M290	⚠
R802	RX10B339JN	R CEMENT	10W 3.3 OHM J BENCH 4P	⚠
R803	RS02Z683J-	R M-OXIDE FILM	2W 68K OHM J (TAPPING)	
R804	RF02Z568J-	R FUSIBLE	2W 0.56 OHM J (TAPPING)	⚠
R805	RS01Z240J-	R M-OXIDE FILM	1W 24 OHM J (TAPPING)	
R806	RD-4Z101J-	R CARBON FILM	1/4 100 OHM J	
R807	RD-4Z242J-	R CARBON FILM	1/4 2.4K OHM J	
R808	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J	
R809	RD-4Z222J-	R CARBON FILM	1/4 2.2K OHM J	
R810	RD-4Z220J-	R CARBON FILM	1/4 22 OHM J	
R811	RD-4Z102J-	R CARBON FILM	1/4 1K OHM J	
R812	RC-2Z565J-	R CARBON COMP	1/2 5.6M OHM J	
R813	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J	
R814	RD-4Z242J-	R CARBON FILM	1/4 2.4K OHM J	
R815	RD-2Z104J-	R CARBON FILM	1/2 100K OHM J	
R816	RD-2Z104J-	R CARBON FILM	1/2 100K OHM J	
R817	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J	
R818	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J	
R819	RS02Z620J-	R M-OXIDE FILM	2W 62 OHM J (TAPPING)	
R820	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J	
R901	RD-AZ242J-	R CARBON FILM	1/6 2.4K OHM J	
R902	RD-AZ242J-	R CARBON FILM	1/6 2.4K OHM J	
R903	RD-AZ242J-	R CARBON FILM	1/6 2.4K OHM J	
R904	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	
R905	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	
R906	RD-AZ202J-	R CARBON FILM	1/6 2K OHM J	
R907	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J	
R908	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J	

LOC.	PART-CODE	PART-NAME	PART-DESCRIPTION	REMARK
R909	RD-4Z104J-	R CARBON FILM	1/4 100K OHM J	
R911	RC-2Z152J-	R CARBON COMP	1/2 1.5K OHM J	
R912	RC-2Z152J-	R CARBON COMP	1/2 1.5K OHM J	
R913	RC-2Z152J-	R CARBON COMP	1/2 1.5K OHM J	
R920	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING	
SCT1	4859303030	SOCKET CRT	ISMM03S	⚠
SF101	5PG1966M—	FILTER SAW	G1966M	
SW701	5S50101090	SW TACT	SKHV17910A	
SW702	5S50101090	SW TACT	SKHV17910A	
SW703	5S50101090	SW TACT	SKHV17910A	
SW704	5S50101090	SW TACT	SKHV17910A	
SW705	5S50101090	SW TACT	SKHV17910A	
SW801	5S40101143	SW PUSH	PS3-22SP (P.C.B)	⚠
T401	50D10A2—-	TRANS DRIVE	TD-10A2	⚠
T402	50H0000177	FBT	HST1142.5057	⚠
T801	50M3934A1-	TRANS SMPS	TSM-3934A1	⚠
U101	4859714430	TUNER VARACTOR	3303KHC-3X1289	
X501	5XE4R4336E	CRYSTAL QUARTZ	HC-49/U 4.433619MHZ 30PPM	
X701	5XEZ0R000E	CRYSTAL QUARTZ	HC-49/U 20.000MHZ 30PPM	
Z501	5PXPS5R5MB	FILTER CERA	TPS5.5MB-TF21 (TP)	
Z601	5PXFSH5R5M	FILTER CERA	SFSH5.5MCB-TF21 (TP)	
*	48B1530SVC	SERVICE REMOCON	R-30SVC	

Difference of Parts for CRT

NO	LOC	NAME	14" OEC	14" Polkolor	14" PHILPS
1	V901	CRT BARE	A34JLL90X 48A96414P1	A34EFU13X01 4859606640	A34EAC01X 4859606240
2	SCT1	SOCKET CRT	ISMM03S 4859303030	—	ISMM03S 4859303030
3	SCT2	SOCKET CRT	—	ISHS09S 4859302930	—
4	LP03	COIL BEAD	MD-5 5MC0000100	—	—
5	LP04	COIL BEAD	—	MD-5 5MC0000100	MD-5 5MC0000100
6	L405	COIL H-LIN.	L-125 58H0000018	L-102 58H0000016	L-102 58H0000016
7	C410	C MYLAR	1.6KV 7500 CMYH3C752J	1.6KV 6200 CMYH3C622J	1.6KV 6200 CMYH3C622J
8	C411	C MYLAR	200V 0.47 CMYE2D474J	250V 0.68 J CMYT2E684J	200V 0.51 CMYE2D514J
9	R413	R C-FILM	1/4W 120K RD-4Z124J-	1/4W 68K RD-4Z683J-	1/4W 150K RD-4Z154J-
10	R415	R FUSIBLE	1W 1.2 A (F) RF01Z129JA	1W 0.18 (F) RF01Z188J-	1W 0.47 (F) RF01Z478J-
11	R302	R C-FILM	1/6W 1.8K RD-AZ182J-	1/6W 2.2K RD-AZ222J	1/6W 1.8K RD-AZ182J-
12	R901-3	R C-FILM	1/6W 3K RD-AZ302J-	1/6W 3K RD-AZ302J-	1/6W 2.4K RD-AZ242J-
13	P401	CONN WAFER	YFW500-05 4859240020	YFW500-06 4859240120	YFW500-06 4859240120
14	P401A	CONN AS	—	35135/0620 +35179 +ULW=350 4850706S20	35135/0620 +35179 +ULW=350 4850706S20

Difference of Parts for System

NO	LOC	NAME	C14M7E	C14T7L, C14M7L	C14T7B, C14M7B	C14M7F
1	PWC1	POWER CORD AS	CW4232 4859903110	CW3222 4859905110	CW3222 4859905110	CW4232 4859903110
2	SF101	SAW FILTER	G1966M 5PG1966M—	J1952M 5PJ1952M—	J1952M 5PJ1952M—	G1966M 5PG1966M—
3	Z501	CERA. FILTER	TPS5.5MB-TF21 5PXPS5R5MB	TPS6.0MB 5PTPS60MB-	TPS6.0MB 5PTPS60MB-	TPS5.5MB-TF21 5PXPS5R5MB
4	Z601	CERA. FILTER	SFSH5.5MCB-TF21 5PXFSH5R5M	SFSH6.0MCB-TF21 5PXFSH6ROM	SFSH6.0MCB-TF21 5PXFSH6R0M	SFSH5.5MCB-TF21 5PXFSH5R5M
5	I503	IC SECAM	-		-	TDA8395 1TDA8395—
6	Q705	TR	KTC3198Y TKTC3198Y-	KTC3198Y TKTC3198Y-	-	KTC3198Y TKTC3198Y-
7	Q706	TR	KTC3198Y	KTC3198Y	-	KTC3198Y
8	Q708	TR	KTA1266Y TKTA1266Y-	KTA1266Y TKTA1266Y-	-	KTA1266Y TKTA1266Y-
9	Q709	TR	KTA1266Y	KTA1266Y	-	KTA1266Y
10	R729	R C-FILM	1/6W 33K RD-AZ333J-	1/6W 33K RD-AZ333J-	-	1/6W 33K RD-AZ333J-
11	R730	R C-FILM	1/6W 33K	1/6W 33K	-	1/6W 33K
12	R732	R C-FILM	1/6W 4.7K RD-AZ472J-	1/6W 4.7K RD-AZ472J-	-	1/6W 4.7K RD-AZ472J-
13	R733	R C-FILM	1/6W 4.7K	1/6W 4.7K	-	1/6W 4.7K
14	R736	R C-FILM	1/6W 4.7K	1/6W 4.7K	-	1/6W 4.7K
15	R737	R C-FILM	1/6W 4.7K	1/6W 4.7K	-	1/6W 4.7K
16	C105	C ELECTRO	50V 4.7u CEXF1H479V	50V 4.7u CEXF1H479V	-	50V 4.7u CEXF1H479V
17	C106	C CERA	50V 0.01u CCZF1E103Z	50V 0.01u CCZF1E103Z	-	50V 0.01u CCZF1E103Z
18	C107	C ELECTRO	50V 4.7u	50V 4.7u	-	50V 4.7u
19	C108	C CERA	50V 0.01u	50V 0.01u	-	50V 0.01u
20	U101	TUNER	3303KHC 4859714430	3303KHC 4859714430	DT2-IV17D 4859716130	3303KHC 4859714430
21	Z101	CERA. FILTER	-	-	-	MKT40MA100P 5PMKT40MA-
22	Z102	CERA. FILTER	-	-	-	MKT40MA100P
23	IL01	IC AM DEMOD.	-	-	-	STV8225 1STV8225—
24	SL01	SAW FILTER	-	-	-	L9461M 5PL9461M—
25	QL01	TR	-	-	-	KTC3198Y
26	QL02	TR	-	-	-	KTC3198Y
27	QL03	TR	-	-	-	KTC3197 TKTC3197—
28	Q702	TR	-	-	-	KTC3198Y
29	DL01	DIODE	-	-	-	1SS85TA D1SS85TA—
30	DL02	DIODE	-	-	-	1SS85TA
31	RL01	R C-FILM	-	-	-	1/6W 22K RD-AZ223J-
32	RL02	R C-FILM	-	-	-	1/6W 100 RD-AZ101J-

NO	LOC	NAME	C14M7E	C14T7L, C14M7L	C14T7B, C14M7B	C14M7F
33	RL03	R C-FILM	-	-	-	1/6W 2.2K RD-AZ222J-
34	RL04	R C-FILM	-	-	-	1/6W 10K RD-AZ103J-
35	RL05	R C-FILM	-	-	-	1/6W 10K
36	RL06	R C-FILM	-	-	-	1/6W 68K RD-AZ683J-
37	RL07	R C-FILM	-	-	-	1/4W 120 RD-4Z121J-
38	RL08	R C-FILM	-	-	-	1/6W 15K RD-AZ153J-
39	RL09	R C-FILM	-	-	-	1/6W 750 RD-AZ751J-
40	RL10	R C-FILM	-	-	-	1/6W 2.2K
41	R101	R C-FILM	-	-	-	1/6W 47 RD-AZ470J-
42	R712	R C-FILM	-	-	-	1/6W 10K
43	R713	R C-FILM	-	-	-	1/6W 4.7K
44	R752	R C-FILM	-	-	-	1/6W 10K
45	R763	R C-FILM	-	-	-	1/6W 100
46	CL07	C CERA	-	-	-	50V 82 CCZB1H820K
47	CL01	C CERA	-	-	-	50V CH 22 CZCH1H220J
48	CL02	C ELECTRO	-	-	-	50V 47u CEXF1H470V
49	CL03	C CERA	-	-	-	50V 0.01u CCZF1E103Z
50	CLO4	C ELECTRO	-	-	-	50V 4.7u CEXF1H479V
51	CL05	C CERA	-	-	-	50V CH 22 CZCH1H220J
52	CL06	C ELECTRO	-	-	-	50V 4.7u
53	C707	C ELECTRO	-	-	-	50V 10u CEXF1H100V
54	C728	C CERA	-	-	-	25VF 0.022MF CCZF1E223Z
55	JP08	WIRE COPPER	WIRE COPPER	WIRE COPPER	WIRE COPPER	-
56	JP09	WIRE COPPER	WIRE COPPER	WIRE COPPER	WIRE COPPER	-
57	I501	TDA8374A	TDA8374A 1TDA8374A-	TDA8374A 1TDA8374A-	TDA8374A 1TDA8374A-	TDA8374 1TDA8374—
58	C104	C ELECTRO	50V 4.7u CEXF1H479V	50V 4.7u CEXF1H479V	50V 4.7u CEXF1H479V	50V 33u CEXF1H330V

Difference of parts for Option

-Teletext option

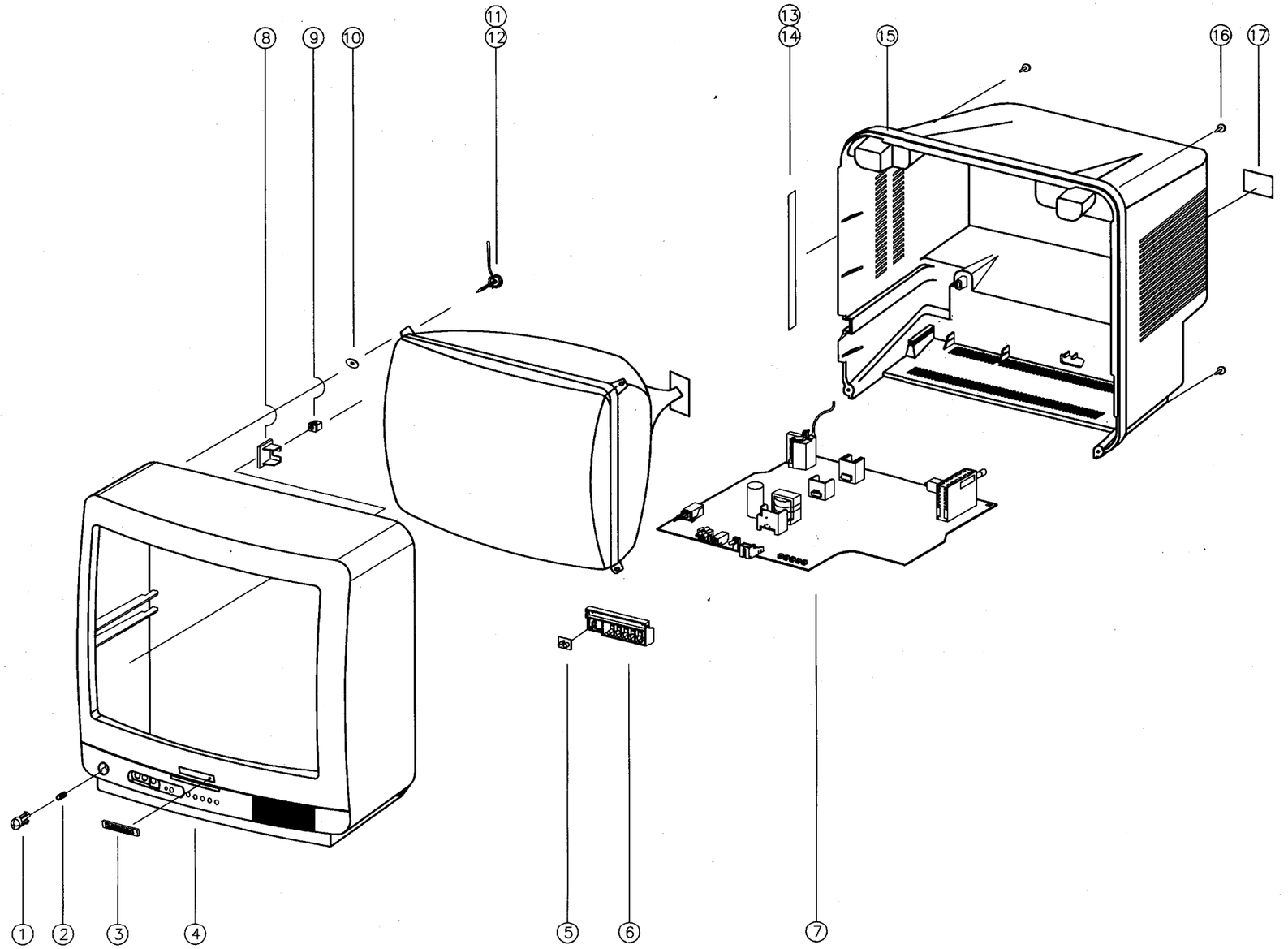
Option	I701	X701	C719
TTX - West Europe	DW5255M*	18MHz	50V EU 0.33uF
Non - TTX	DW370M*	20MHz	-

-Antenna option

Antenna Type No.	Name
PH-RM-003	Rod Antenna
PH-RM-006	Loop Antenna

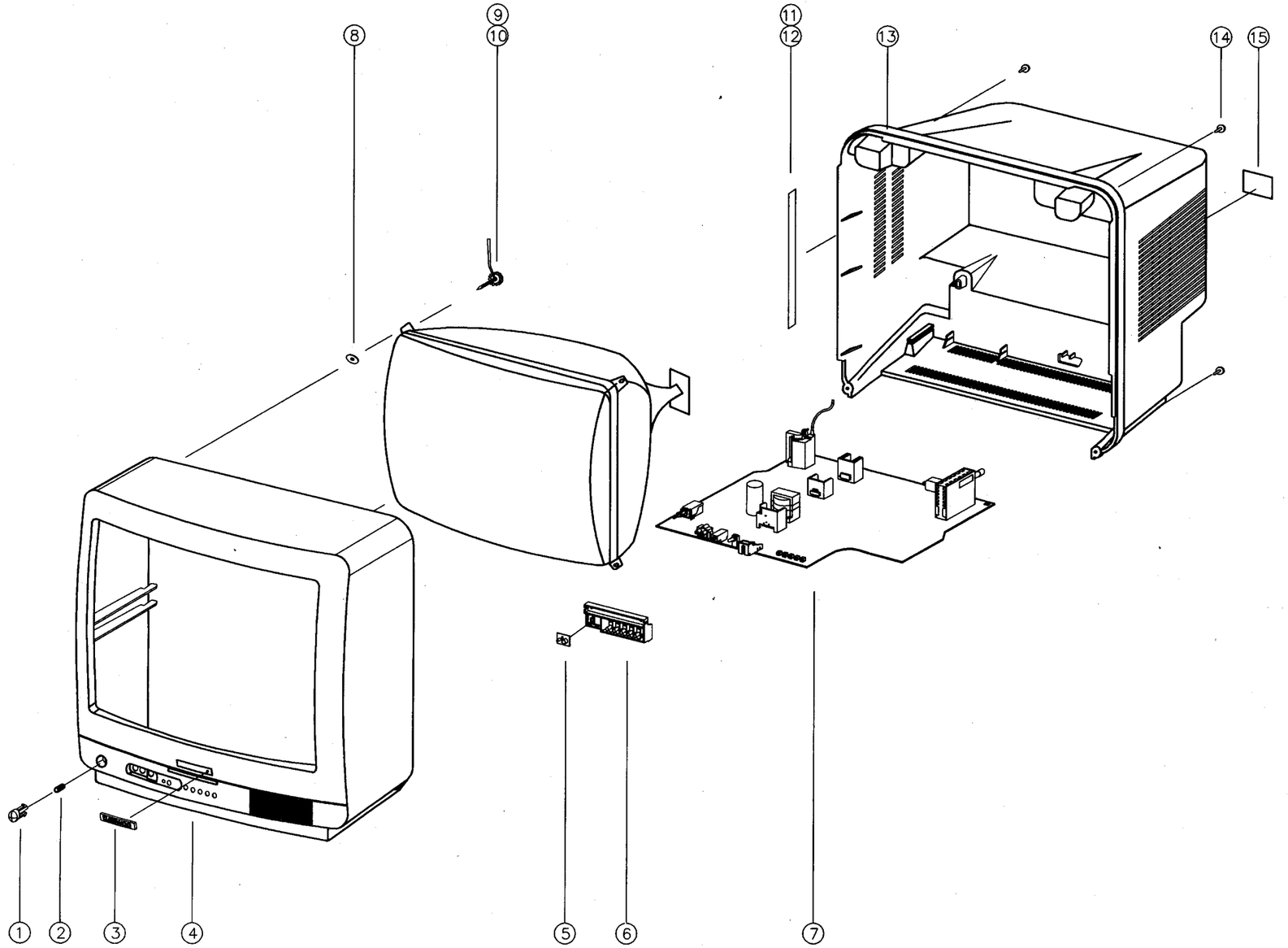
Mechanical Exploded View and Parts List

14Q1



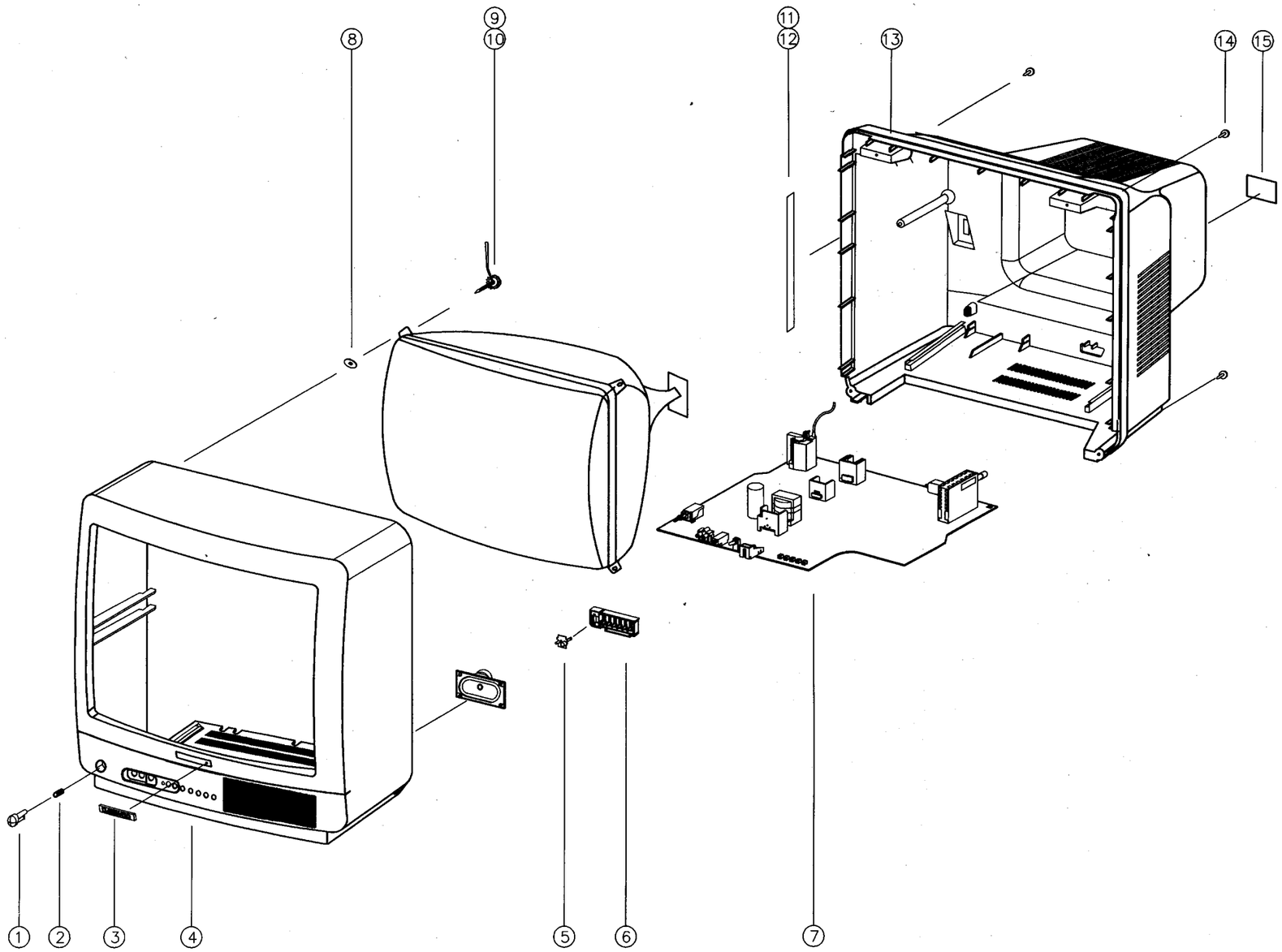
21	6520010100	STAPLE PIN	1	18M/M JDO	
20	4858211400	POLY BAG	1	P.E. FILM T0.03X600X550	
19	4858038700	BOX CARTON	1	SW-2	
18	4858179200	PAD	1	EPS	
17	4855415800	SPEC PLATE	1	150 ART P/E FILM	
16	7122401412	SCREW TAPPING	1	T2S· TRS 4X14 MFZN BK	
15	4852147201	COVER BACK	1	HIPS BK	
14	4857817640	CLOTH BLACK	1	FELT T0.7 L=100	
13	4857817611	CLOTH BLACK	1	FELT T0.7 L=200	
12	4856013300	SCREW CRT FIXING AS.	2	L=70mm	
11	4856013301	SCREW CRT FIXING AS.	2	L=140mm	
10	4852148500	WASHER RUBBER	4	CR T2.0	
9	97P231601	HODER AC CORD	1	NYLON66(VCR-32DAV(JB))	
8	4853533200	HOLDER BRKT	1	HIPS BK	
7		MAIN PCB	1	CP-375	
6	4854933000	BUTTON	1	ABS BK	
5	4855530400	DECO SENSOR	1	PMMA	
4	4852060501	MASK FRONT	1	HIPS BK	
3	4855613600	MARK BRAND	1	A1050P-H24 T0.4	
2	4856717900	SPRING	1	SWPA	
1	4854848201	POWER BUTTON	1	ABS BK	

■ 20Q1



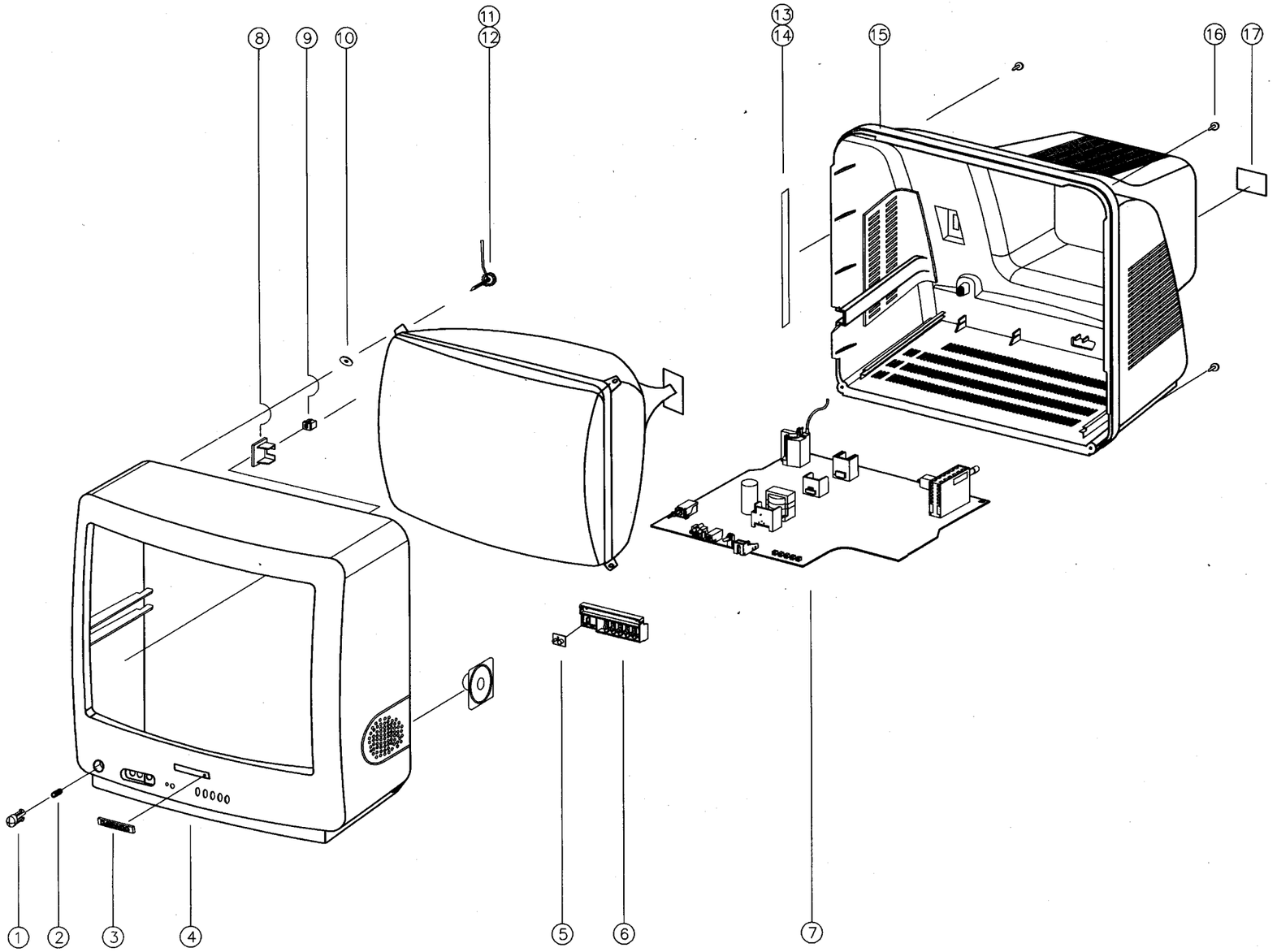
19	652001010 00	STAPLE PIN	1	18M/M JDO	
18	485821140 0	POLY BAG	1	P.E. FILM T0.03X600X550	
17	485804520 0	BOX CARTON	1	SW-2	
16	485817930 0	PAD	1	EPS	
15	485541580 0	SPEC PLATE	1	150 ART P/E FILM	
14	712240141 2	SCREW TAPPING	1	T2S TRS 4X14 MFZN BK	
13	485214730 1	COVER BACK	1	HIPS BK	
12	485781764 0	CLOTH BLACK	1	FELT T0.7 L=100	
11	485781761 1	CLOTH BLACK	1	FELT T0.7 L=200	
10	485601330 0	SCREW CRT FIXING AS.	2	L=70mm	
9	485601330 1	SCREW CRT FIXING AS.	2	L=140mm	
8	485214850 0	WASHER RUBBER	4	CR T2.0	
7		MAIN PCB	1	CP-375	
6	485493300 0	BUTTON	1	ABS BK	
5	485553040 0	DECO SENSOR	1	PMMA	
4	485206070 0	MASK FRONT	1	HIPS BK	
3	485561360 0	MARK BRAND	1	A1050P-H24 T0.4	
2	485671790 0	SPRING	1	SWPA	
1	485484820 1	POWER BUTTON	1	ABS BK	

■ 21Q1



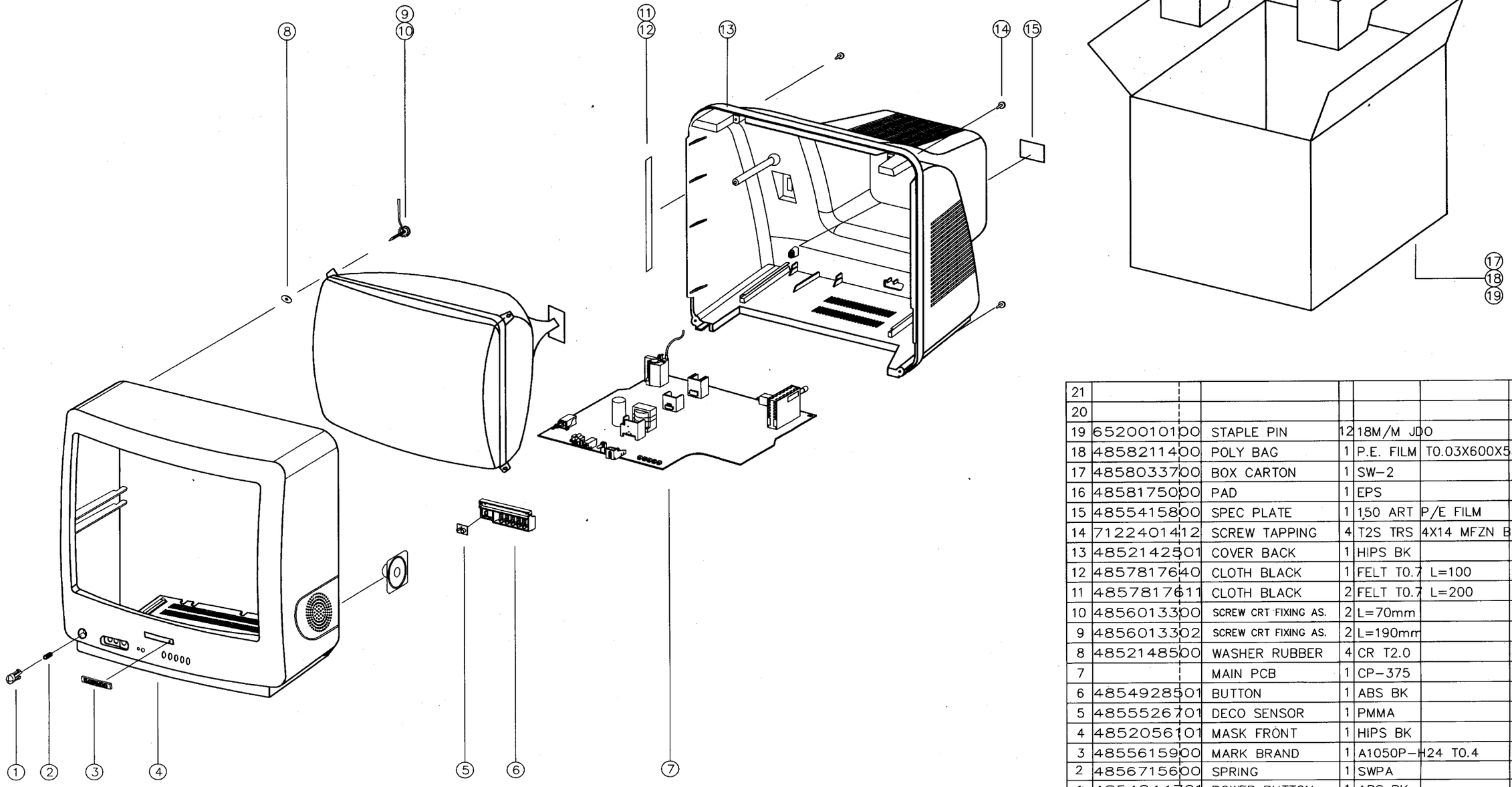
21					
20					
19	6520010100	STAPLE PIN	12	18M/M J00	
18	4858211400	POLY BAG	1	P.E. FILM T0.03X600X55(	
17	4858050600	BOX CARTON	1	SW-2	
16	4858179700	PAD	1	EPS	
15	4855415800	SPEC PLATE	1	150 ART P/E FILM	
14	7122401412	SCREW TAPPING	4	T2S TRS 4X14 MFZN BK	
13	4852147701	COVER BACK	1	HIPS BK	
12	4857817640	CLOTH BLACK	1	FELT T0.7 L=100	
11	4857817611	CLOTH BLACK	2	FELT T0.7 L=200	
10	4856013300	SCREW CRT FIXING AS.	2	L=70mm	
9	4856013302	SCREW CRT FIXING AS.	2	L=190mm	
8	4852148500	WASHER RUBBER	4	CR T2.0	
7		MAIN PCB	1	CP-375	
6	4854933201	BUTTON	1	ABS BK	
5	4855530800	DECO SENSOR	1	PMMA	
4	4852061101	MASK FRONT	1	HIPS BK	
3	48556159BW	MARK BRAND	1	A1050P-H24 T0.4	
2	4856716000	SPRING	1	SWPA	
1	4854848601	POWER BUTTON	1	ABS BK	

■ 14A5



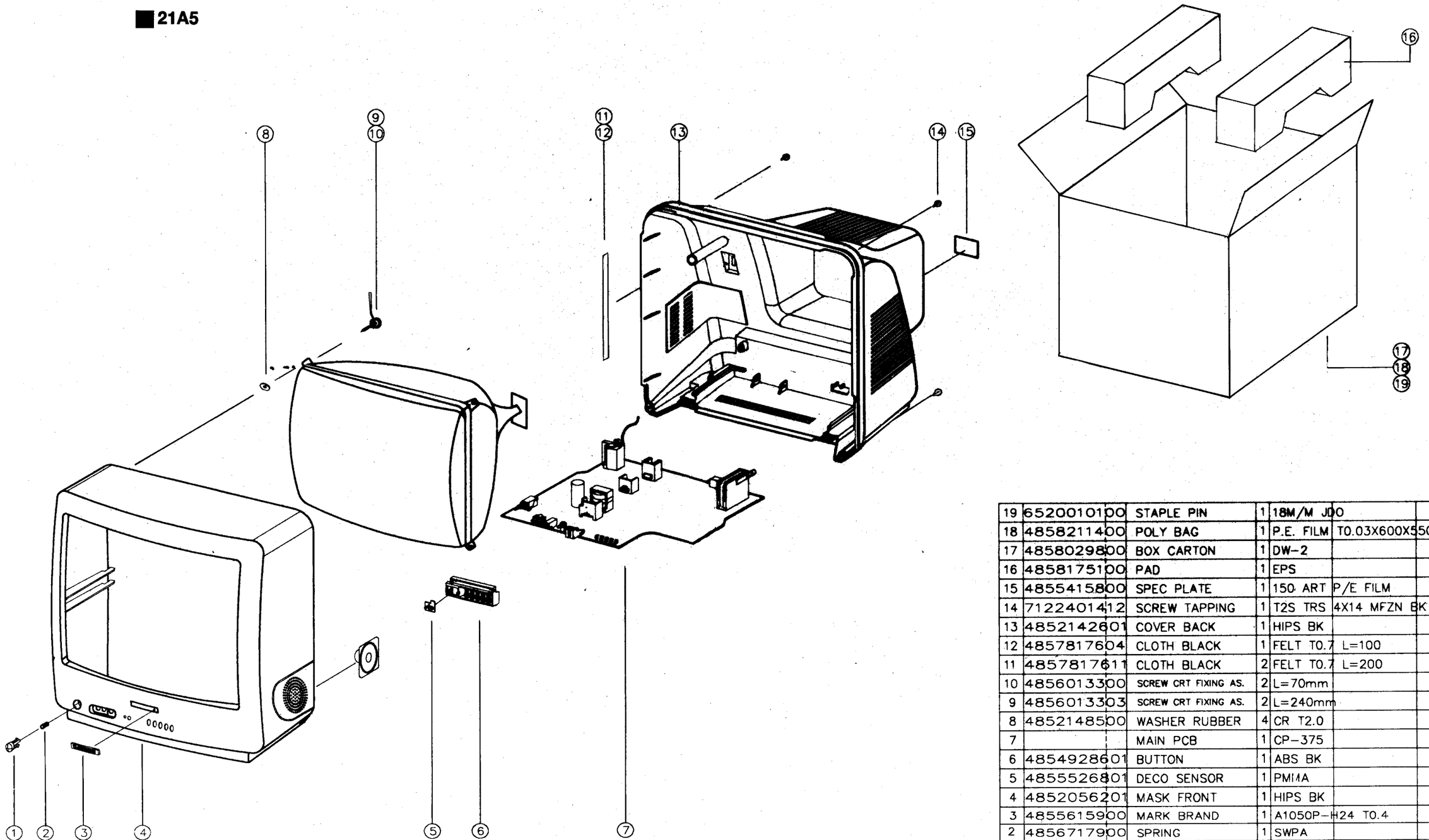
21	6520010100	STAPLE PIN	1	18M/M JDO	
20	4858211400	POLY BAG	1	P.E. FILM T0.03X600X550	
19	4858034800	BOX CARTON	1	SW-2	
18	4858174900	PAD	1	EPS	
17	4855415800	SPEC PLATE	1	150 ART P/E FILM	
16	7122401412	SCREW TAPPING	4	T2S TRS 4X14 MFZN BK	
15	4852142401	COVER BACK	1	HIPS 'BK	
14	4857817640	CLOTH BLACK	2	FELT T0.7 L=100	
13	4857817611	CLOTH BLACK	1	FELT T0.7 L=200	
12	4856013300	SCREW CRT FIXING AS	2	L=70mm	
11	4856013301	SCREW CRT FIXING AS	2	L=140mm	
10	4852148500	WASHER RUBBER	4	CR T2.0	
9	97P231601	HODER AC CORD	1	NYLON66(VCR-32DAV(JB))	
8	4853533200	HOLDER BRKT	1	HIPS BK	
7		MAIN PCB	1	CP-375	
6	4854928401	BUTTON	1	ABS BK	
5	4855526001	DECO SENSOR	1	PMMA	
4	4852056001	MASK FRONT	1	HIPS BK	
3	4855613600	MARK BRAND	1	A1050P-H24 T0.4	
2	4856717900	SPRING	1	SWPA	
1	4854844601	POWER BUTTON	1	ABS BK	

■ 20A5



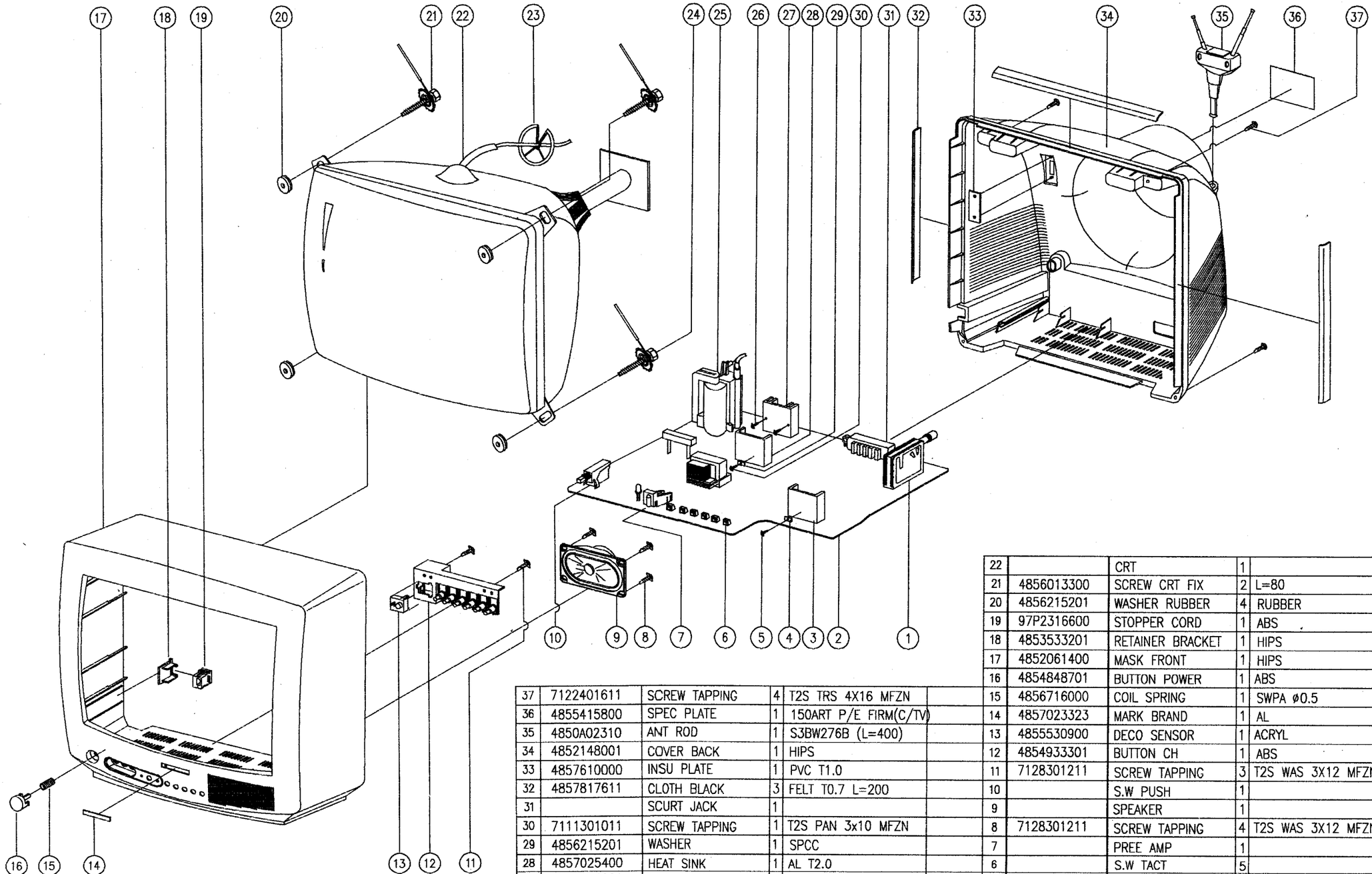
21						
20						
19	652001010 00	STAPLE PIN	12	18M/M JDO		
18	485821140 0	POLY BAG	1	P.E. FILM	T0.03X600X550	
17	485803370 0	BOX CARTON	1	SW-2		
16	485817500 0	PAD	1	EPS		
15	485541580 0	SPEC PLATE	1	150 ART	P/E FILM	
14	712240141 2	SCREW TAPPING	4	T2S TRS	4X14 MFZN BK	
13	485214250 1	COVER BACK	1	HIPS BK		
12	485781764 0	CLOTH BLACK	1	FELT T0.7	L=100	
11	485781761 1	CLOTH BLACK	2	FELT T0.7	L=200	
10	485601330 0	SCREW CRT FIXING AS.	2	L=70mm		
9	485601330 2	SCREW CRT FIXING AS.	2	L=190mm		
8	485214850 0	WASHER RUBBER	4	CR T2.0		
7		MAIN PCB	1	CP-375		
6	485492850 1	BUTTON	1	ABS BK		
5	485552670 1	DECO SENSOR	1	PMMA		
4	485205610 1	MASK FRONT	1	HIPS BK		
3	485561590 0	MARK BRAND	1	A1050P-H24	T0.4	
2	485671560 0	SPRING	1	SWPA		
1	485484470 1	POWER BUTTON	1	ABS BK		

■21A5



19	6520010100	STAPLE PIN	1	18M/M J00	
18	4858211400	POLY BAG	1	P.E. FILM T0.03X600X550	
17	4858029800	BOX CARTON	1	DW-2	
16	4858175100	PAD	1	EPS	
15	4855415800	SPEC PLATE	1	150 ART P/E FILM	
14	7122401412	SCREW TAPPING	1	T2S TRS 4X14 MFZN BK	
13	4852142601	COVER BACK	1	HIPS BK	
12	4857817604	CLOTH BLACK	1	FELT T0.7 L=100	
11	4857817611	CLOTH BLACK	2	FELT T0.7 L=200	
10	4856013300	SCREW CRT FIXING AS.	2	L=70mm	
9	4856013303	SCREW CRT FIXING AS.	2	L=240mm	
8	4852148500	WASHER RUBBER	4	CR T2.0	
7		MAIN PCB	1	CP-375	
6	4854928601	BUTTON	1	ABS BK	
5	4855526801	DECO SENSOR	1	PMMA	
4	4852056201	MASK FRONT	1	HIPS BK	
3	4855615900	MARK BRAND	1	A1050P-H24 T0.4	
2	4856717900	SPRING	1	SWPA	
1	4854844801	POWER BUTTON	1	ABS BK	

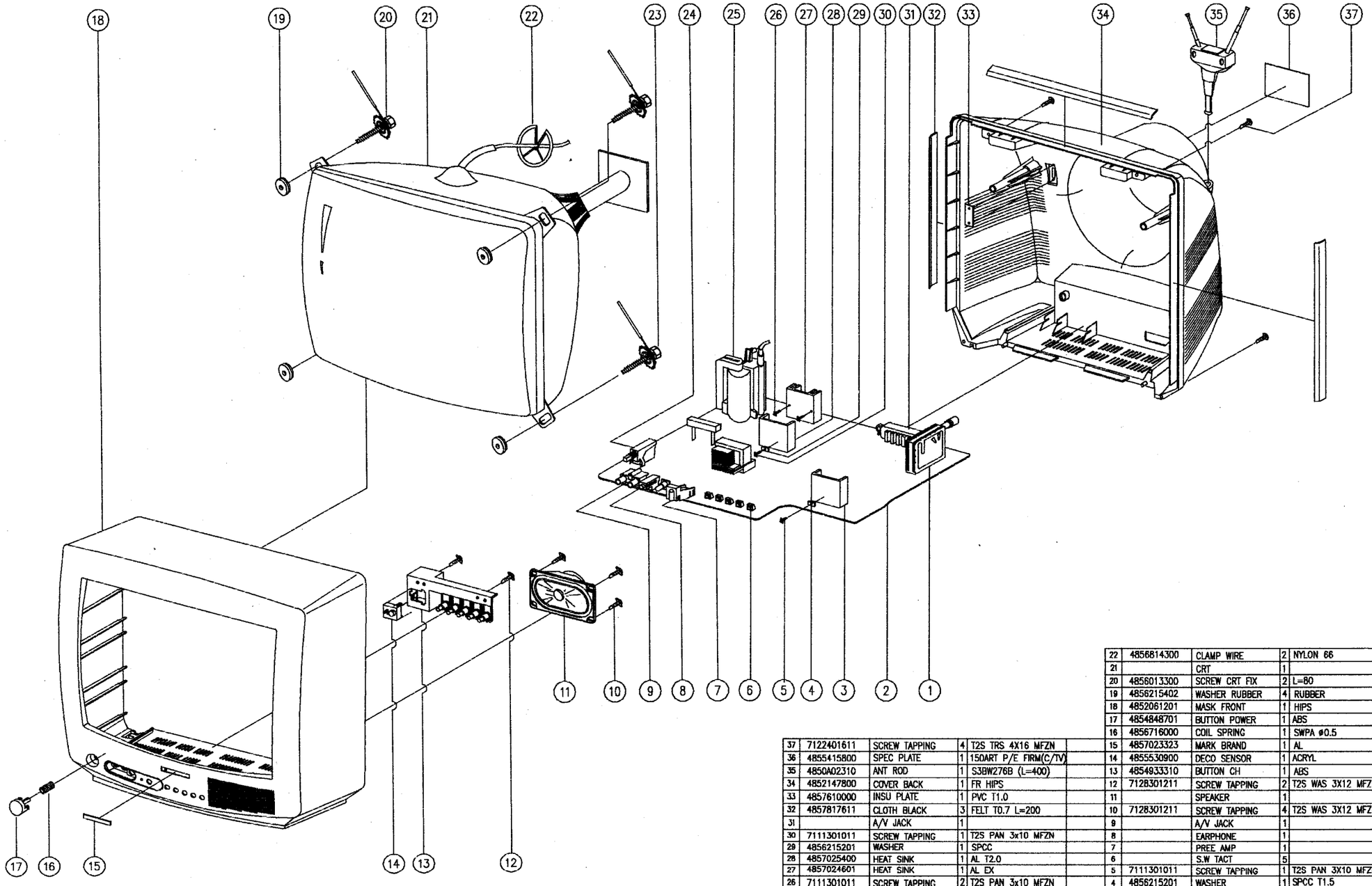
■ 14Q2



37	7122401611	SCREW TAPPING	4	T2S TRS 4X16 MFZN	
36	4855415800	SPEC PLATE	1	150ART P/E FIRM(C/TV)	
35	4850A02310	ANT ROD	1	S3BW276B (L=400)	
34	4852148001	COVER BACK	1	HIPS	
33	4857610000	INSU PLATE	1	PVC T1.0	
32	4857817611	CLOTH BLACK	3	FELT T0.7 L=200	
31		SCURT JACK	1		
30	7111301011	SCREW TAPPING	1	T2S PAN 3x10 MFZN	
29	4856215201	WASHER	1	SPCC	
28	4857025400	HEAT SINK	1	AL T2.0	
27	4857024601	HEAT SINK	1	AL EX	
26	7111301011	SCREW TAPPING	2	T2S PAN 3x10 MFZN	
25		FBT	1		
24	4856013301	SCREW CRT FIX	2	L=140	
23	4856814300	CLAMP WIRE	2	NYLON 66	

22		CRT	1		
21	4856013300	SCREW CRT FIX	2	L=80	
20	4856215201	WASHER RUBBER	4	RUBBER	
19	97P2316600	STOPPER CORD	1	ABS	
18	4853533201	RETAINER BRACKET	1	HIPS	
17	4852061400	MASK FRONT	1	HIPS	
16	4854848701	BUTTON POWER	1	ABS	
15	4856716000	COIL SPRING	1	SWPA ø0.5	
14	4857023323	MARK BRAND	1	AL	
13	4855530900	DECO SENSOR	1	ACRYL	
12	4854933301	BUTTON CH	1	ABS	
11	7128301211	SCREW TAPPING	3	T2S WAS 3X12 MFZN	
10		S.W PUSH	1		
9		SPEAKER	1		
8	7128301211	SCREW TAPPING	4	T2S WAS 3X12 MFZN	
7		PREE AMP	1		
6		S.W TACT	5		
5	7111301011	SCREW TAPPING	1	T2S PAN 3X10 MFZN	
4	4856215201	WASHER	1	SPCC T1.5	
3	4857025401	HEAT SINK	1	A1050P-H24 T2.0	
2		PCB MAIN	1		
1		TUNER	1		

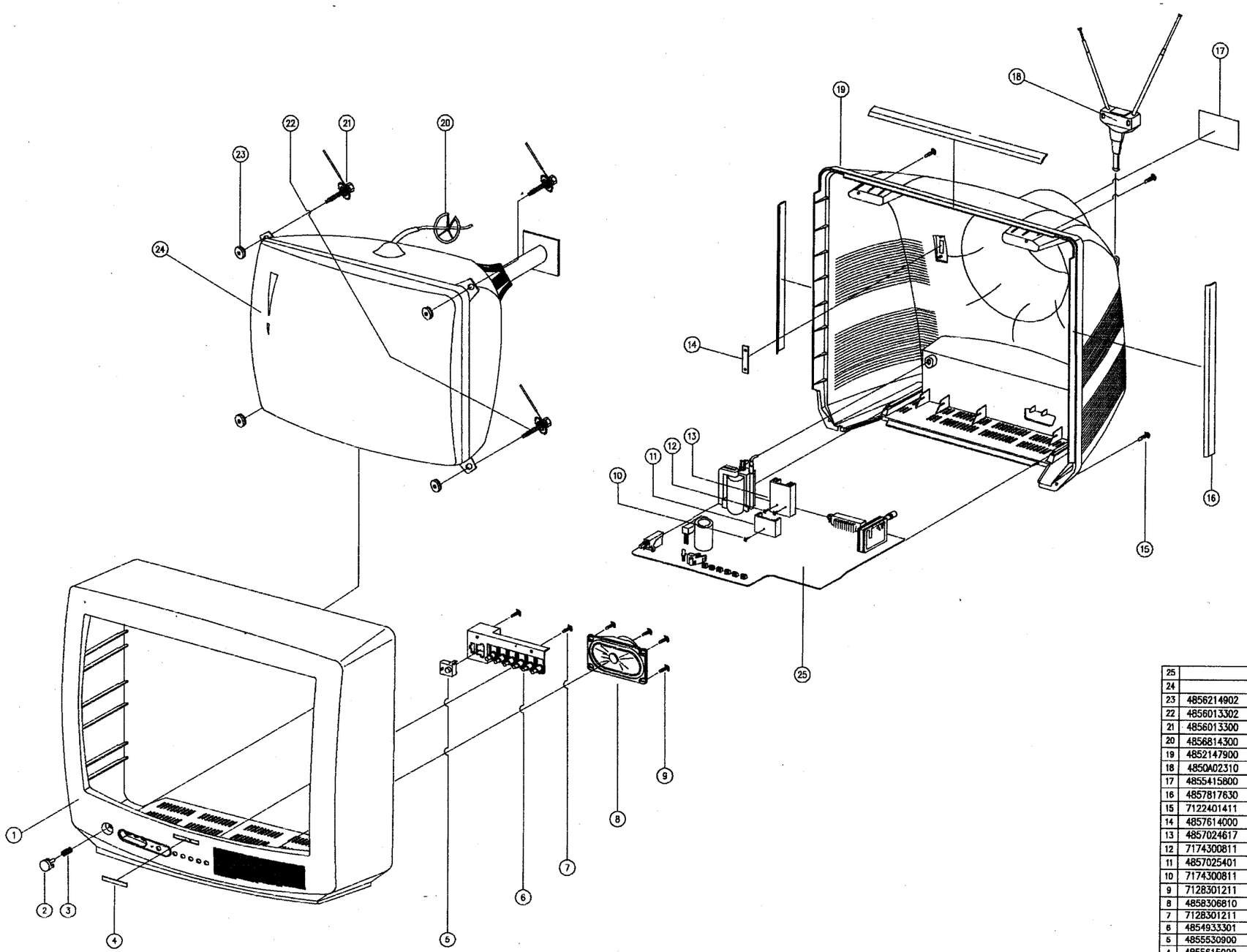
20Q2



37	7122401611	SCREW TAPPING	4	T2S TRS 4X16 MFZN	
36	4855415800	SPEC PLATE	1	150ART P/E FIRM(C/TV)	
35	4850A02310	ANT ROD	1	SJBW276B (L=400)	
34	4852147800	COVER BACK	1	FR HIPS	
33	4857610000	INSU PLATE	1	PVC T1.0	
32	4857817611	CLOTH BLACK	3	FELT T0.7 L=200	
31		A/V JACK	1		
30	7111301011	SCREW TAPPING	1	T2S PAN 3x10 MFZN	
29	4856215201	WASHER	1	SPCC	
28	4857025400	HEAT SINK	1	AL T2.0	
27	4857024601	HEAT SINK	1	AL EX	
26	7111301011	SCREW TAPPING	2	T2S PAN 3x10 MFZN	
25		FBT	1		
24		S.W PUSH	1		
23	4856013302	SCREW CRT FIX	2	L=190	

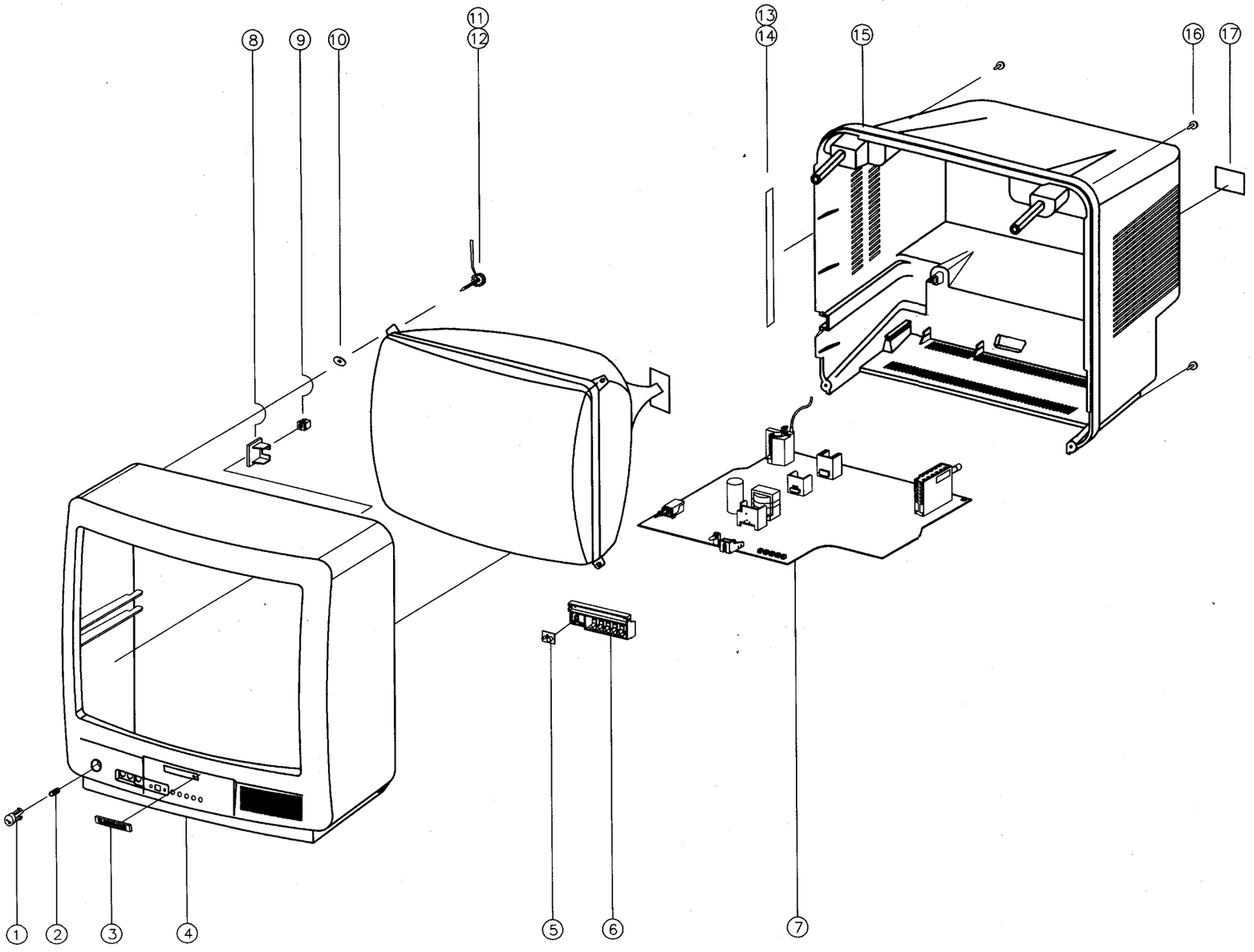
22	4856814300	CLAMP WIRE	2	NYLON 66	
21		CRT	1		
20	4856013300	SCREW CRT FIX	2	L=80	
19	4856215402	WASHER RUBBER	4	RUBBER	
18	4852061201	MASK FRONT	1	HIPS	
17	4854848701	BUTTON POWER	1	ABS	
16	4856716000	COIL SPRING	1	SWPA ø0.5	
15	4857023323	MARK BRAND	1	AL	
14	4855530900	DECO SENSOR	1	ACRYL	
13	4854933310	BUTTON CH	1	ABS	
12	7128301211	SCREW TAPPING	2	T2S WAS 3X12 MFZN	
11		SPEAKER	1		
10	7128301211	SCREW TAPPING	4	T2S WAS 3X12 MFZN	
9		A/V JACK	1		
8		EARPHONE	1		
7		PREE AMP	1		
6		S.W TACT	5		
5	7111301011	SCREW TAPPING	1	T2S PAN 3X10 MFZN	
4	4856215201	WASHER	1	SPCC T1.5	
3	4857025401	HEAT SINK	1	A1050P-H24 T2.0	
2		PCB MAIN	1		
1		TUNER	1		

21Q2



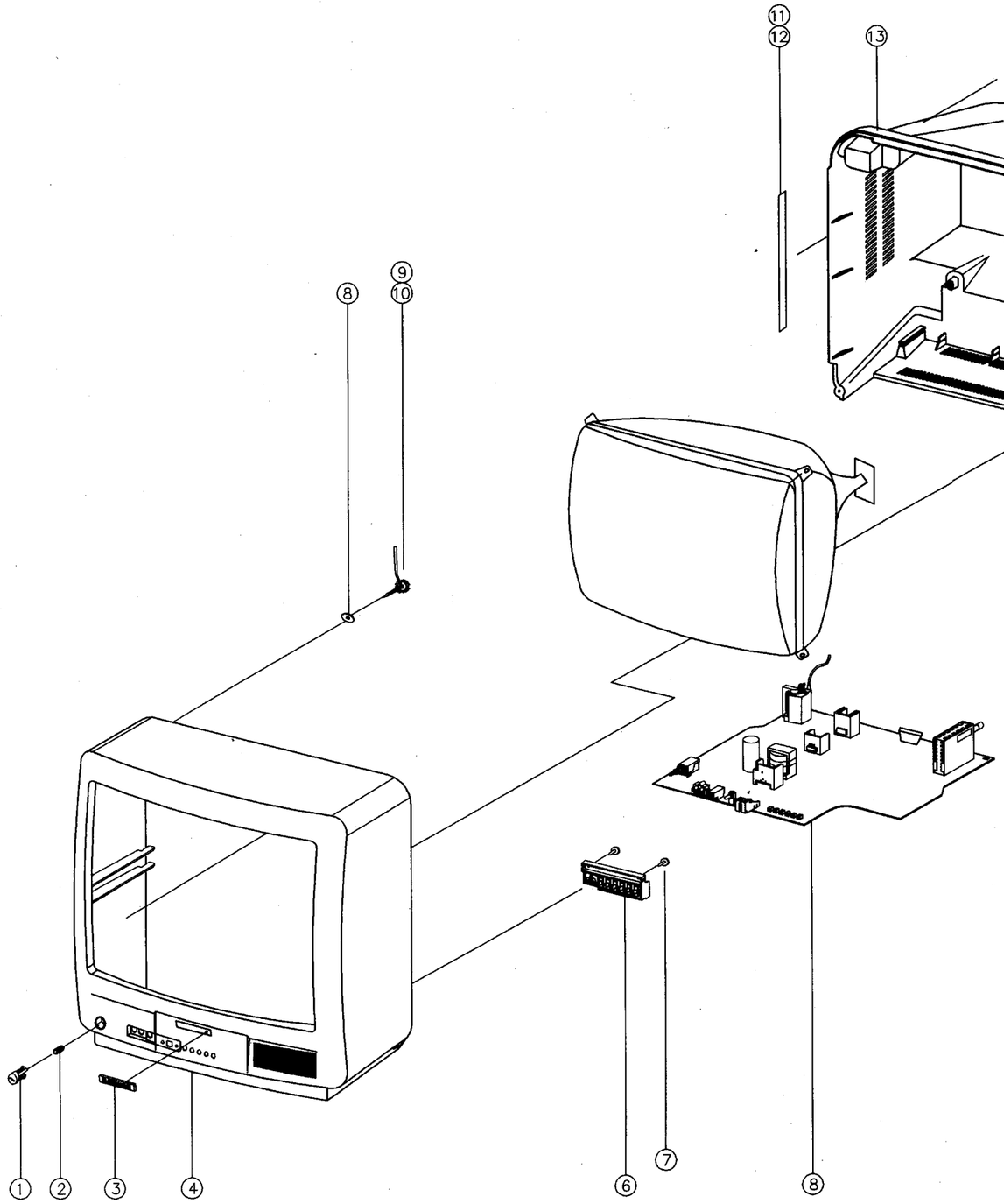
25		PCB ASS'Y	1		
24		CRT	1		
23	4856214902	WASHER RUBBER	4	CR T2	
22	4856013302	SCREW CRT FIX AS	2	L=190 BK	
21	4856013300	SCREW CRT FIX AS	2	L=80 BK	
20	4856814300	CLAMP WIRE	2	NYLON66	
19	4852147900	COVER BACK	1	FR HIPS BK	
18	4850A02310	ANT ROD	1	S3BW276B (L=400MM)	
17	4855415800	SPEC PLATE	1	150 ART P/E FIRM(C/TV)	
16	4857817630	CLOTH BLACK	2	FELT T0.7 L=400	
15	7122401411	SCREW TAPPING	4	T2S TRS 4X14 MFZN	
14	4857614000	PLATE INSU	1	PVC 0.8T BLACK	
13	4857024617	HEAT SINK	1	AL EX	
12	7174300811	SCREW TAPPING	2	TT2 RND 3X8 MFZN	
11	4857025401	HEAT SINK	1	AL EX	
10	7174300811	SCREW TAPPING	1	TT2 RND 3X8 MFZN	
9	7128301211	SCREW TAPPING	4	T2S WAS 3X12 MFZN	
8	4858306810	SPEAKER	1	3W 16 OHM F2035C03-3	
7	7128301211	SCREW TAPPING	2	T2S WAS 3X12 MFZN	
6	4854933301	BUTTON	1	ABS BK	
5	4855530900	DECO SENSOR	1	PMMA	
4	4855615900	MARK BRAND	1	AL T1.0	
3	4856716000	SPRING	1	SWPA PIE0.5	
2	4854848801	BUTTON POWER	1	ABS BK	
1	4852061301	MASK FRONT	1	HIPS BK	

14Q3



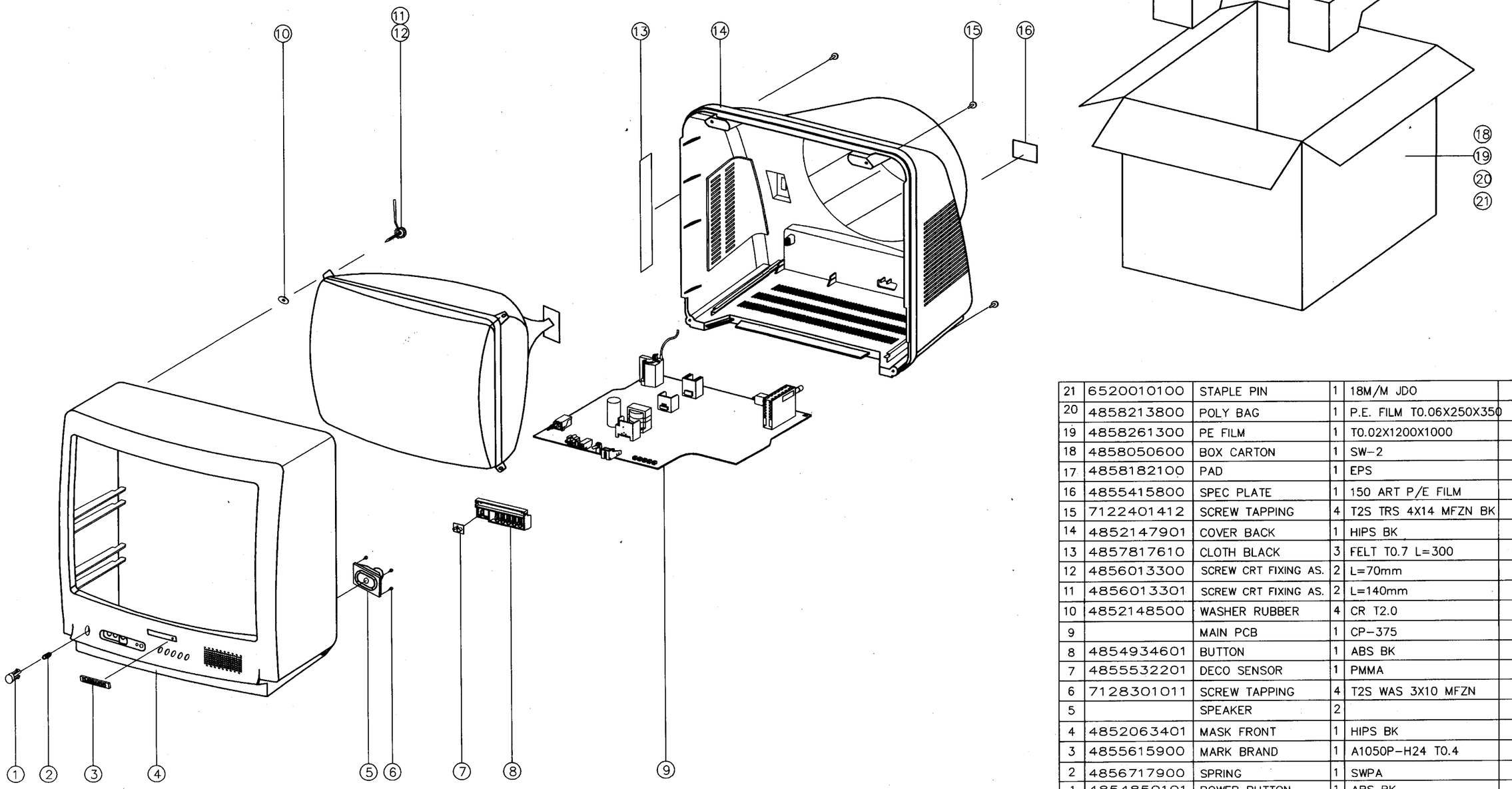
21	6520010100	STAPLE PIN	1	18M/M JDO	
20	4858211400	POLY BAG	1	P.E. FILM T0.03X600X550	
19	4858038700	BOX CARTON	1	SW-2	
18	4858179200	PAD	1	EPS	
17	4855415800	SPEC PLATE	1	150 ART P/E FILM	
16	7122401412	SCREW TAPPING	1	T2S TRS 4X14 MFZN BK	
15	4852147201	COVER BACK	1	HIPS BK	
14	4857817640	CLOTH BLACK	1	FELT T0.7 L=100	
13	4857817611	CLOTH BLACK	1	FELT T0.7 L=200	
12	4856013300	SCREW CRT FIXING AS.	2	L=70mm	
11	4856013301	SCREW CRT FIXING AS.	2	L=140mm	
10	4852148500	WASHER RUBBER	4	CR T2.0	
9	97P231601	HODER AC CORD	1	NYLON66(VCR-32DAV(JB))	
8	4853533200	HOLDER BRKT	1	HIPS BK	
7		MAIN PCB	1	CP-370	
6	4854934701	BUTTON	1	ABS BK	
5	4855532301	DECO SENSOR	1	PMMA	
4	4852063201	MASK FRONT	1	HIPS BK	
3	4855613600	MARK BRAND	1	A1050P-H24 T1.0	
2	4856717900	SPRING	1	SWPA	
1	4854850601	POWER BUTTON	1	ABS BK	

20Q3



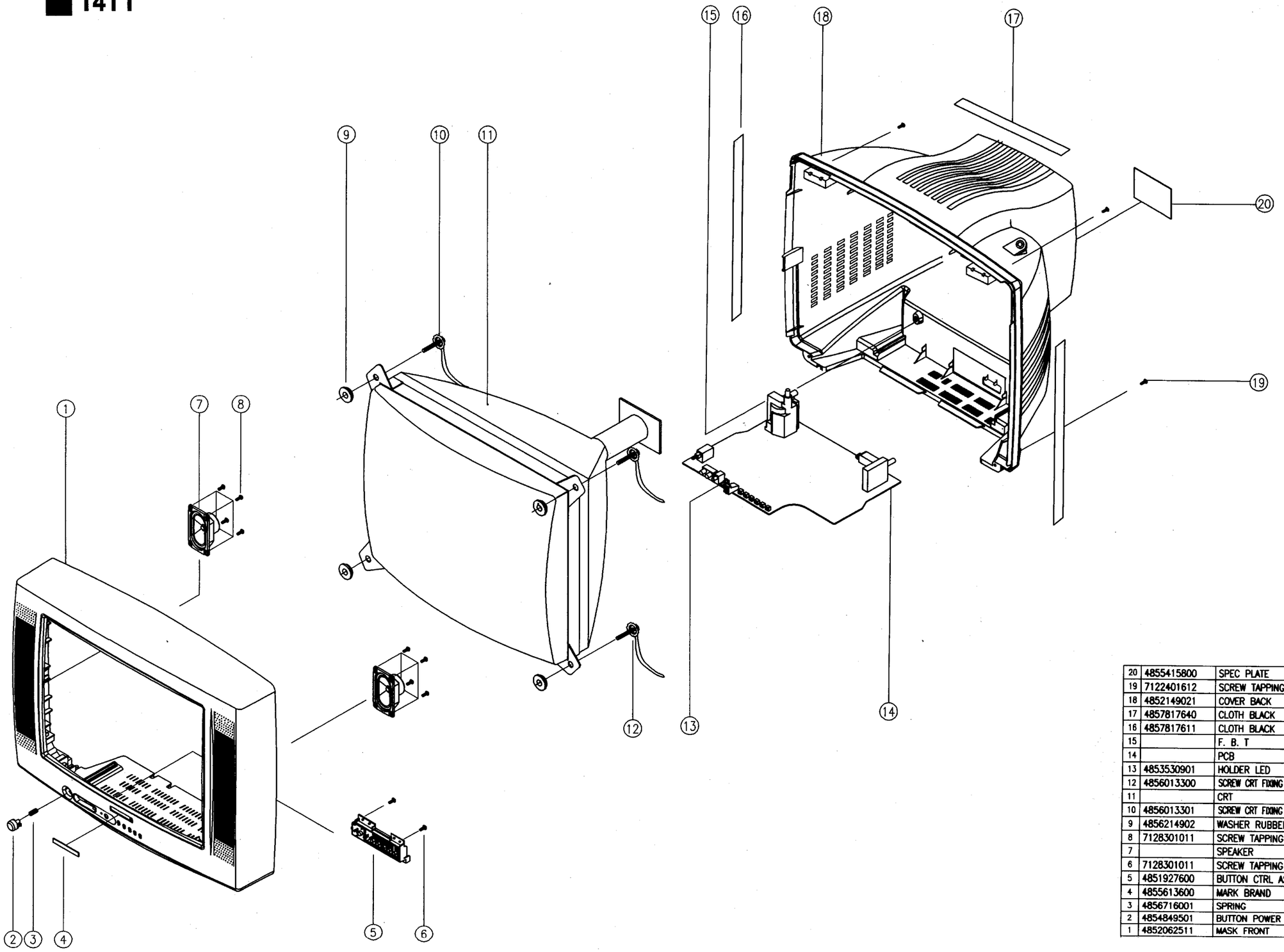
15	4855415800	SPEC PLATE	1	150 ART	P/E FILM	
14	7122401412	SCREW TAPPING	5	T2S TRS	4X16 MFZN BK	
13	4852147300	COVER BACK	1	FR HIPS	BK	
12	4857817610	CLOTH BLACK	2	FELT T0.7	L=300	
11	4857817610	CLOTH BLACK	1	FELT T0.7	L=300	
10	4856013300	SCREW CRT FIXING AS.	1	L=70mm		
9	4856013301	SCREW CRT FIXING AS.	1	L=140mm		
8	4852148500	WASHER RUBBER	1	CR T2.0		
7		MAIN PCB	1	CN-250		
6	7128301011	SCREW TAPPING	2	T2S WAS	3X10 MFZN	
5	4851925910	BUTTON CTRL AS	1	4934710+5532300		
4	4852063301	MASK FRONT	1	HIPS	BK	
3	4855615900	MARK BRAND	1	A1050P-H24	T0.4	
2	4856717900	SPRING	1	SWPA		
1	4854850001	POWER BUTTON	1	ABS	BK	

21Q3



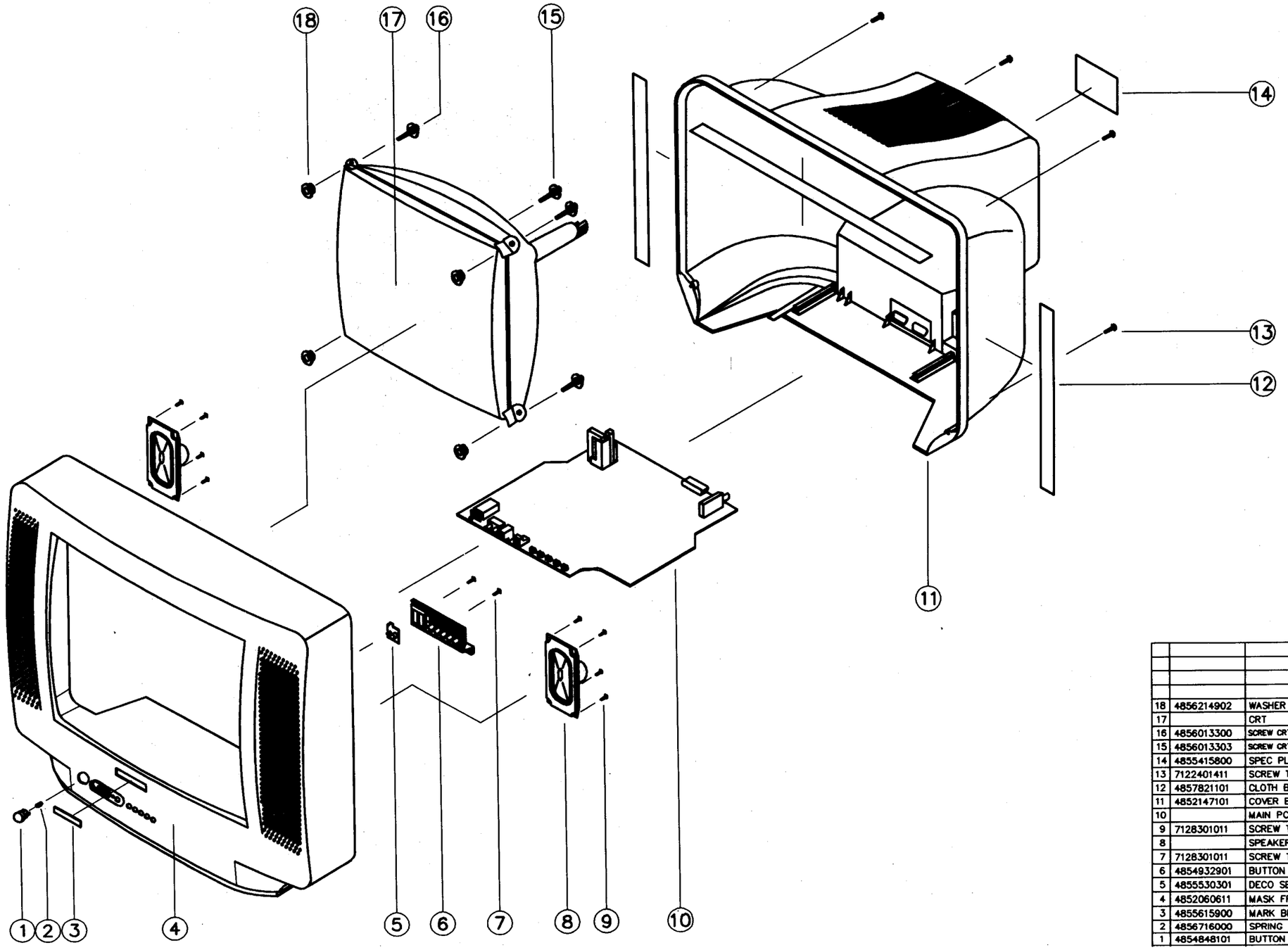
21	6520010100	STAPLE PIN	1	18M/M JDO	
20	4858213800	POLY BAG	1	P.E. FILM T0.06X250X350	
19	4858261300	PE FILM	1	T0.02X1200X1000	
18	4858050600	BOX CARTON	1	SW-2	
17	4858182100	PAD	1	EPS	
16	4855415800	SPEC PLATE	1	150 ART P/E FILM	
15	7122401412	SCREW TAPPING	4	T2S TRS 4X14 MFZN BK	
14	4852147901	COVER BACK	1	HIPS BK	
13	4857817610	CLOTH BLACK	3	FELT T0.7 L=300	
12	4856013300	SCREW CRT FIXING AS.	2	L=70mm	
11	4856013301	SCREW CRT FIXING AS.	2	L=140mm	
10	4852148500	WASHER RUBBER	4	CR T2.0	
9		MAIN PCB	1	CP-375	
8	4854934601	BUTTON	1	ABS BK	
7	4855532201	DECO SENSOR	1	PMMA	
6	7128301011	SCREW TAPPING	4	T2S WAS 3X10 MFZN	
5		SPEAKER	2		
4	4852063401	MASK FRONT	1	HIPS BK	
3	4855615900	MARK BRAND	1	A1050P-H24 T0.4	
2	4856717900	SPRING	1	SWPA	
1	4854850101	POWER BUTTON	1	ABS BK	

14T1



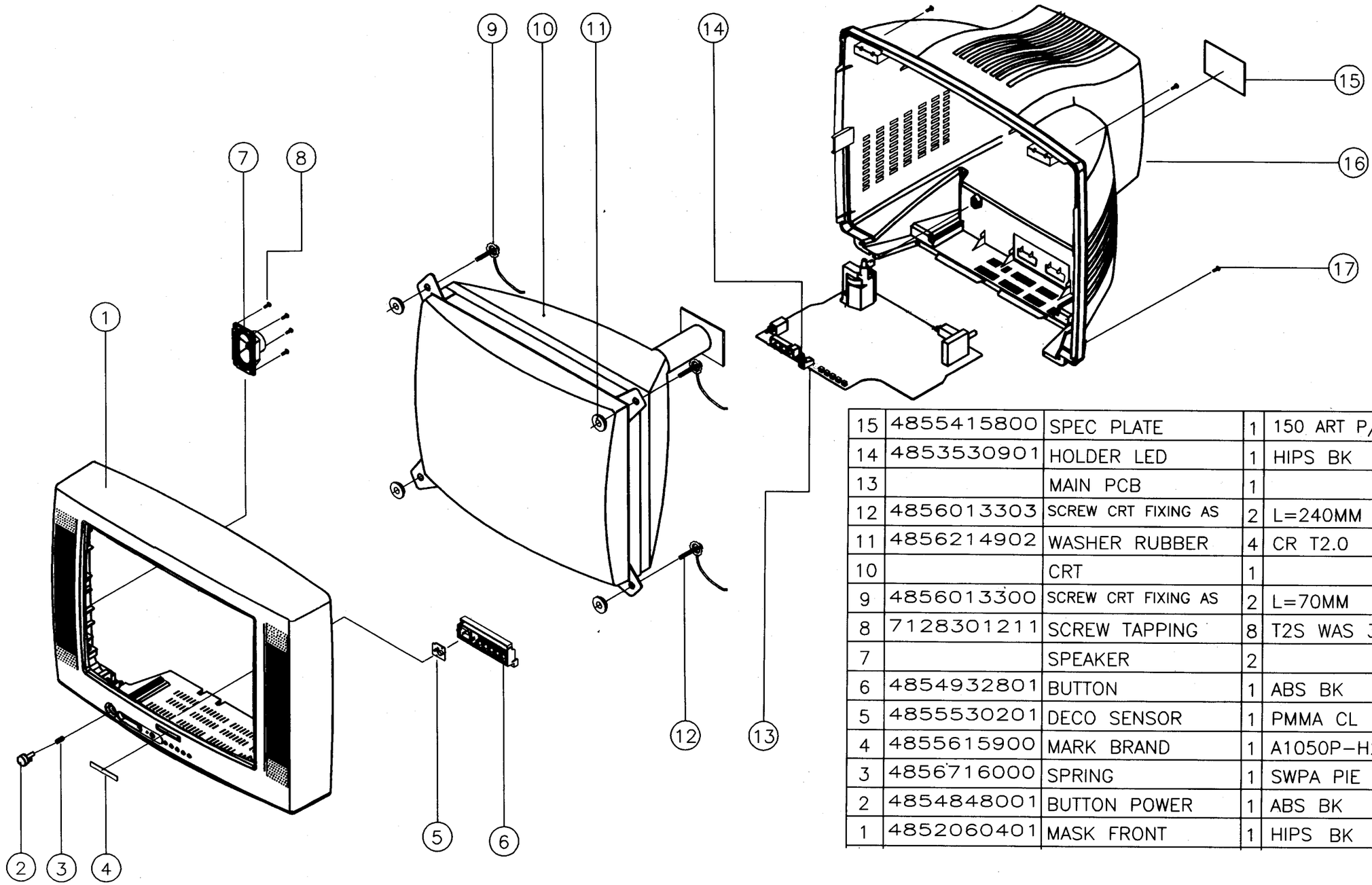
20	4855415800	SPEC PLATE	1	150ART P/E FILM(C/TV)	
19	7122401612	SCREW TAPPING	5	T2S TRS 4X16 MFZN BK	
18	4852149021	COVER BACK	1	HIPS BK	CORE"A3"
17	4857817640	CLOTH BLACK	1	FELT T0.7 L=100	
16	4857817611	CLOTH BLACK	2	FELT T0.7 L=200	
15		F. B. T			
14		PCB			CP-375
13	4853530901	HOLDER LED	1	FR HIPS BK	
12	4856013300	SCREW CRT FIXING AS	2	L = 80MM	
11		CRT	1	A34JLL90X01	
10	4856013301	SCREW CRT FIXING AS	2	L = 140MM	
9	4856214902	WASHER RUBBER	4	CR T2.0	
8	7128301011	SCREW TAPPING	8	T2S WAS 3X10 MFZN	
7		SPEAKER	2		
6	7128301011	SCREW TAPPING	2	T2S WAS 3X10 MFZN	
5	4851927600	BUTTON CTRL AS	1	4934101+5531701	
4	4855613600	MARK BRAND	1	COPPER T0.4	
3	4856716001	SPRING	1	SWPA PIE0.5	
2	4854849501	BUTTON POWER	1	ABS BK	
1	4852062511	MASK FRONT	1	HIPS BK	CORE"A3"

20T1



18	4856214902	WASHER RUBBER	4	CR T2.0	
17		CRT	1	TUBE A'SSY	
16	4856013300	SCREW CRT FIXING AS.	2	L=70mm	
15	4856013303	SCREW CRT FIXING AS.	2	L=240mm	
14	4855415800	SPEC PLATE	1	150ART P/E FILM	
13	7122401411	SCREW TAPPING	5	T2S TRS 4X14 MFZN	
12	4857821101	CLOTH BLACK	3	CLOTH L=300	
11	4852147101	COVER BACK	1	HIPS BK	
10		MAIN PCB A'SSY	1	PCB A'SSY	
9	7128301011	SCREW TAPPING	8	T2S WAS 3X10 MFZN	
8		SPEAKER	2		
7	7128301011	SCREW TAPPING	2	T2S WAS 3X10 MFZN	
6	4854932901	BUTTON	1	ABS BK	
5	4855530301	DECO SENSOR	1	PMMA	
4	4852060611	MASK FRONT	1	HIPS BK	
3	4855615900	MARK BRAND	1	AL0509-H24	
2	4856716000	SPRING	1	SWPA	
1	4854848101	BUTTON POWER	1	ABS BK	

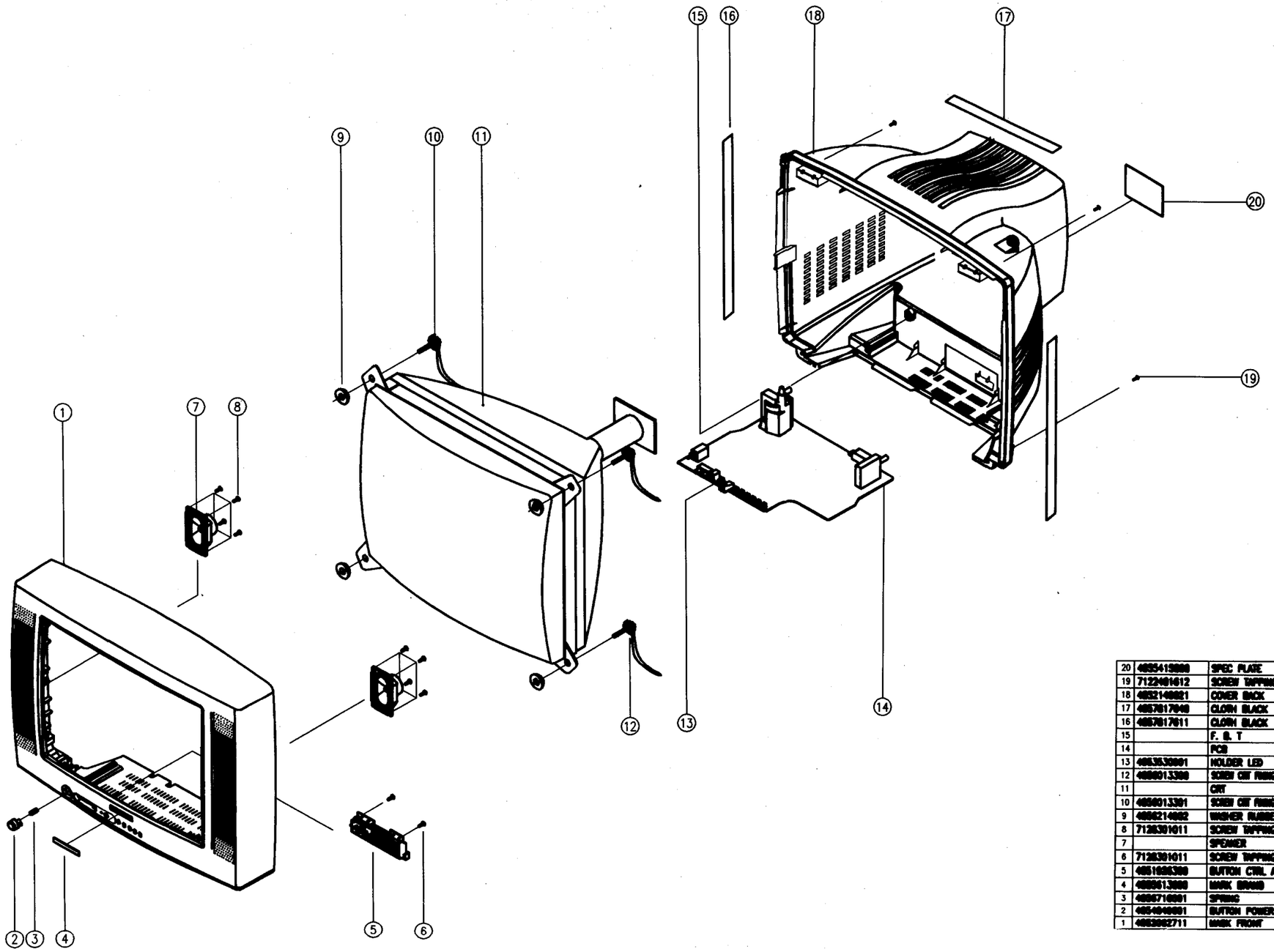
21T1



15	4855415800	SPEC PLATE	1	150 ART P/E FILM(C/TV)	
14	4853530901	HOLDER LED	1	HIPS BK	
13		MAIN PCB	1		CP-375
12	4856013303	SCREW CRT FIXING AS	2	L=240MM	
11	4856214902	WASHER RUBBER	4	CR T2.0	
10		CRT	1		
9	4856013300	SCREW CRT FIXING AS	2	L=70MM	
8	7128301211	SCREW TAPPING	8	T2S WAS 3X12 MFZN	
7		SPEAKER	2		
6	4854932801	BUTTON	1	ABS BK	
5	4855530201	DECO SENSOR	1	PMMA CL	
4	4855615900	MARK BRAND	1	A1050P-H24 T0.4	
3	4856716000	SPRING	1	SWPA PIE T0.5	
2	4854848001	BUTTON POWER	1	ABS BK	
1	4852060401	MASK FRONT	1	HIPS BK	

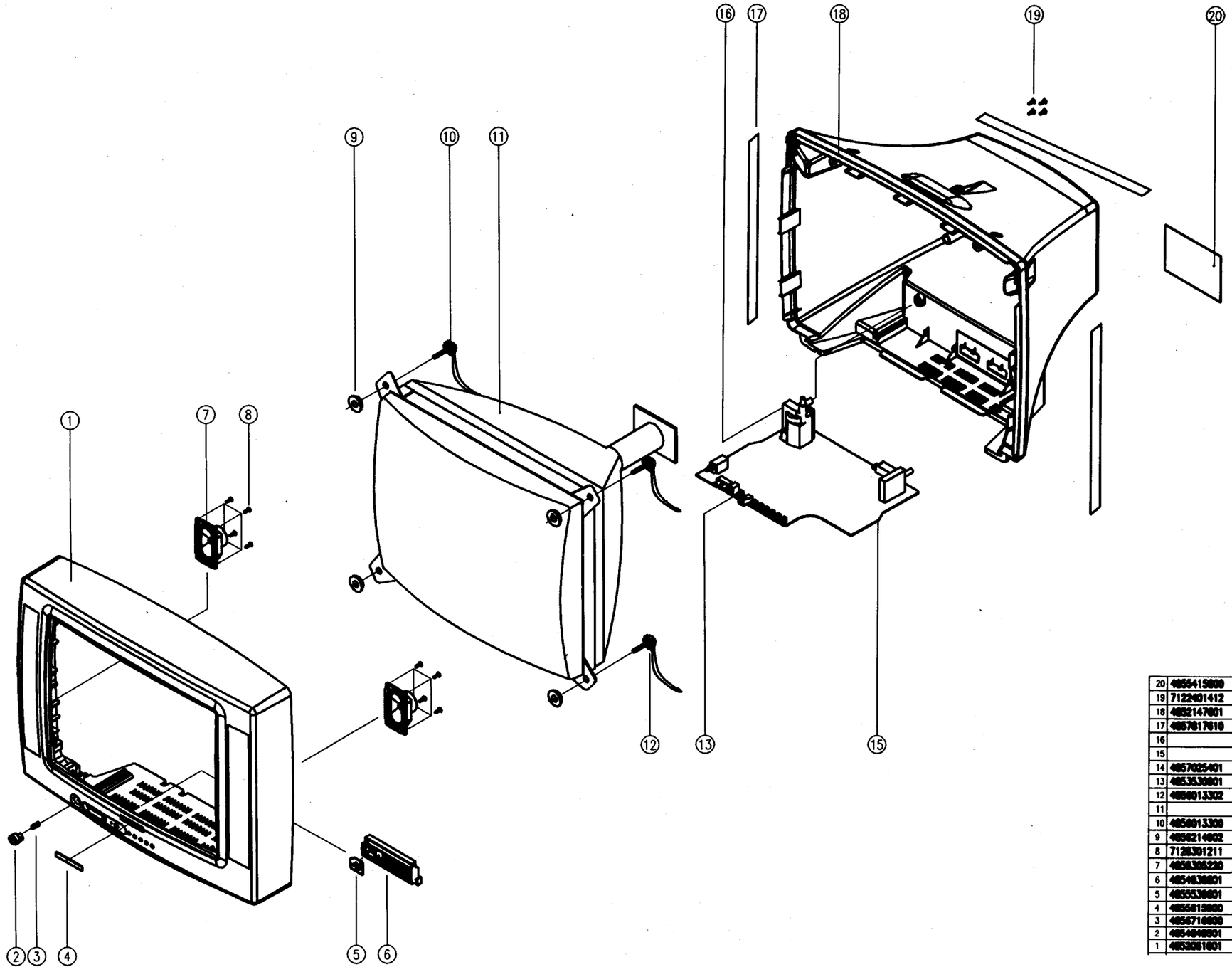
17	7122401412	SCREW TAPPING	4	T2S TRS 4X14 MFZN BK	
16	4852147002	COVER BACK	1	HIPS BK	

14T2



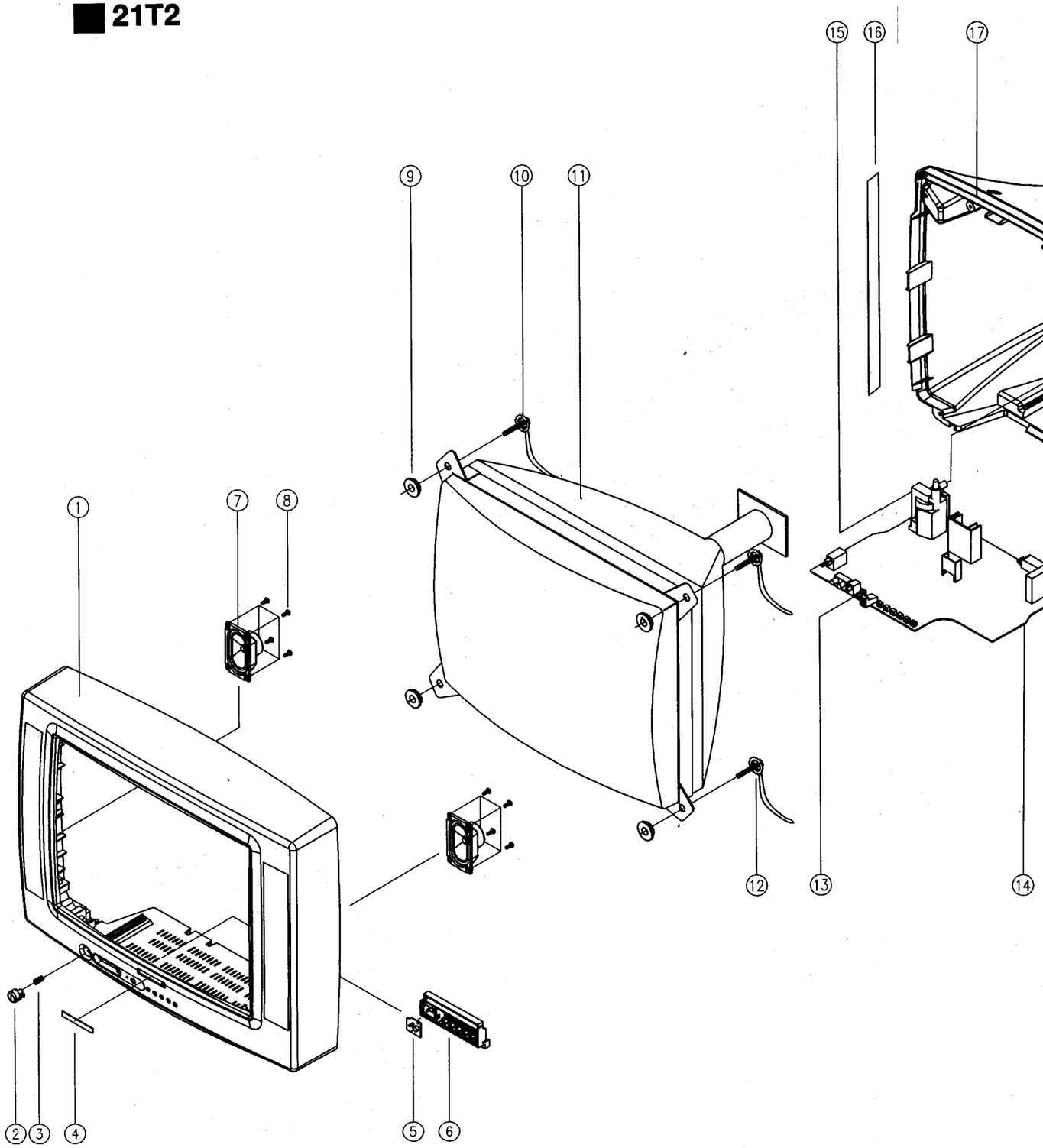
20	4835415000	SPEC PLATE	1	150ART P/E FILM(C/TV)	
19	7122401612	SCREW TAPPING	5	T2S WAS 4X16 MFZN BK	
18	4832140021	COVER BACK	1	HIPS BK	CORE"AS"
17	4857617040	CLOTH BLACK	1	FELT T0.7 L=160	
16	4857617011	CLOTH BLACK	2	FELT T0.7 L=300	
15		F. B. T			
14		PCB			CP-375
13	4863530001	HOLDER LED	1	FR HIPS BK	
12	4836013300	SCREW CRT FIXING AS	2	L = 60MM	
11		CRT	1	A34JLL90X01	
10	4836013301	SCREW CRT FIXING AS	2	L = 140MM	
9	4836214002	WASHER RUBBER	4	OR T2.0	
8	7128301011	SCREW TAPPING	8	T2S WAS 3X10 MFZN	
7		SPEAKER	2		
6	7128301011	SCREW TAPPING	2	T2S WAS 3X10 MFZN	
5	4851636300	BUTTON CTRL AS	1	4834301+5531001	
4	4836613000	MARK BRAND	1	COPPER T0.4	
3	4836716001	SPRING	1	SWPA P#3.5	
2	4854646001	BUTTON POWER	1	ABS BK	
1	4863662711	MARK FRONT	1	HIPS BK	CORE "B"

20T2



20	4855415000	SPEC PLATE	1	150MT P/E FILM(C/TV)	
19	7122401412	SCREW TAPPING	4	T2S TRS 4X14 MFZN BK	
18	4852147001	COVER BACK	1	HIPS BK	
17	4857617010	CLOTH BLACK	3	FELT T0.7 L=300	
16		F. B. T			
15		MAIN PCB			CP-375
14	4857025401	HEAT SINK	1	A1050P-H24 T2	
13	4853538001	HOLDER LED	1	FR HIPS BK	
12	4856013302	SCREW CRT FIXING AS	2	L=180MM	
11		CRT	1		
10	4856013300	SCREW CRT FIXING AS	2	L=70MM	
9	4856214002	WASHER RUBBER	4	CR T2.0	
8	7126301211	SCREW TAPPING	8	T2S WAS 3X12 MFZN	
7	4858305230	SPEAKER	2		
6	4854038001	BUTTON	1	ABS BK	
5	4855538001	DECO SENSOR	1	PMMA C.L	
4	4855615000	MARK BRAND	1	A1050P-H24 T0.4	
3	4856716000	SPRING	1	SWPA WIRE0.5	
2	4854048001	BUTTON POWER	1	ABS BK	
1	4853061001	MASK FRONT	1	HIPS BK	

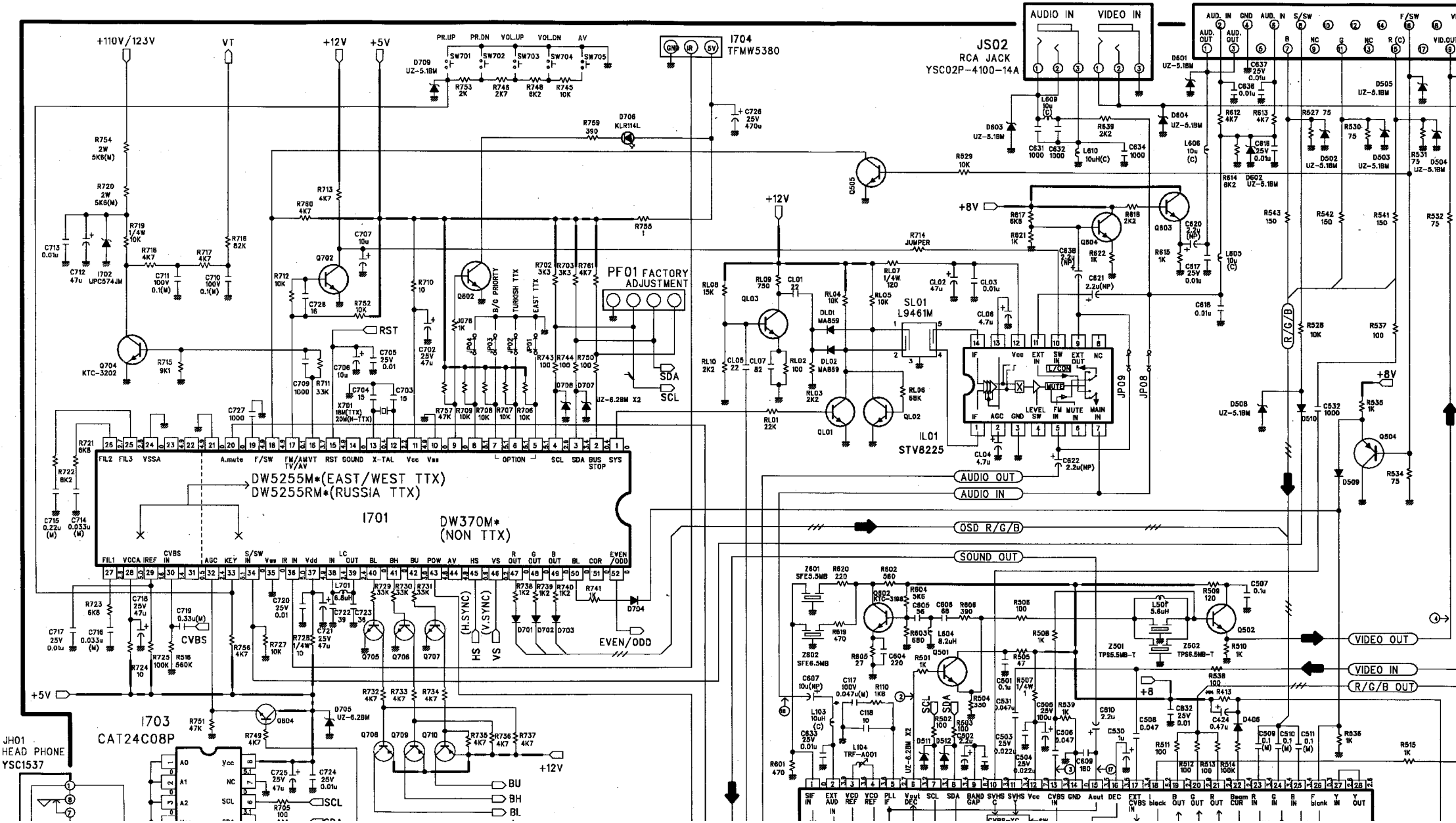
21T2



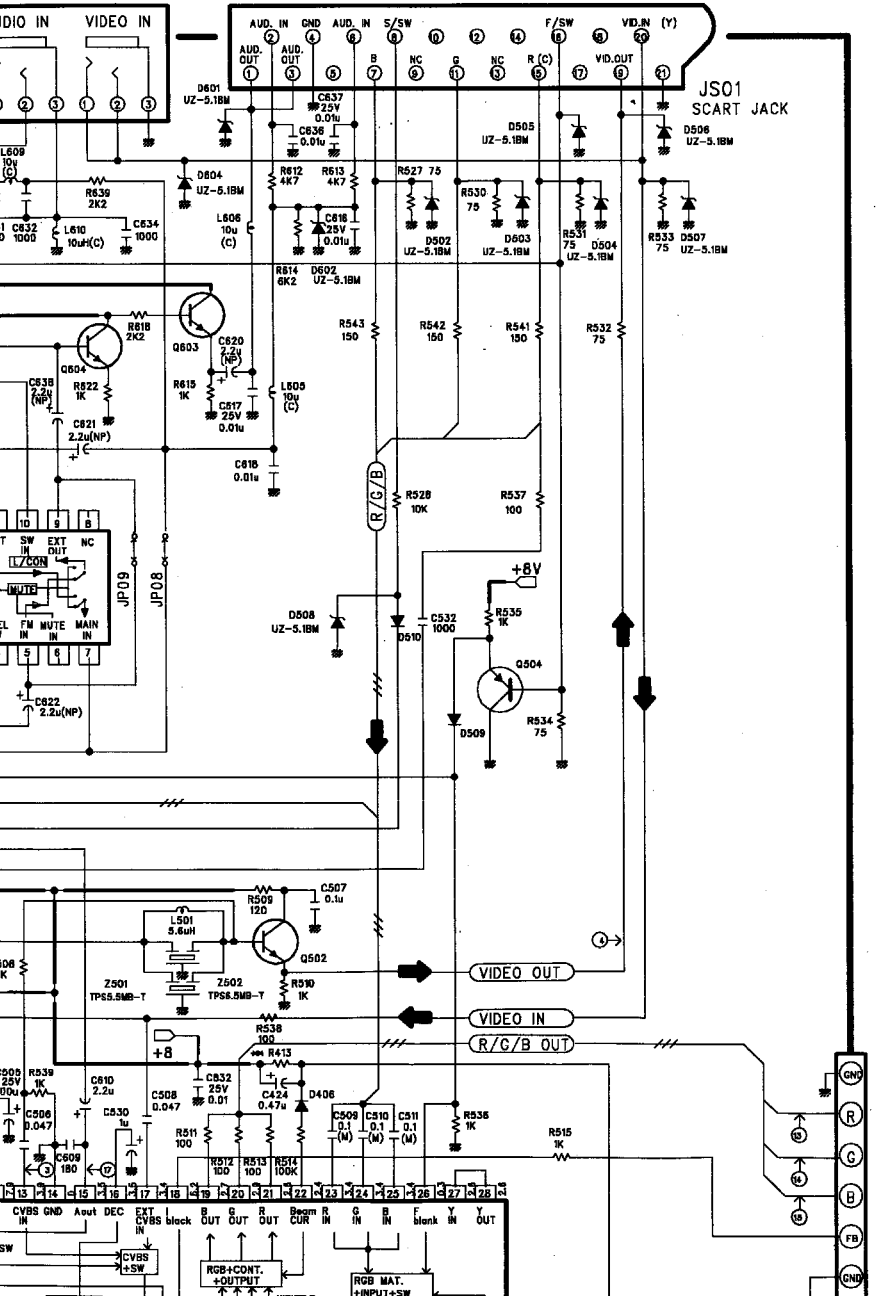
19	4855415800	SPEC PLATE	1	150ART P/E FILM(C/TV)	
18	7122401612	SCREW TAPPING	5	T2S TRS 4X16 MFZN BK	
17	4852147501	COVER BACK	1	HIPS BK	
16	4857817610	CLOTH BLACK	3	FELT T0.7 L=300	
15		F. B. T			
14		PCB			
13	4853530901	HOLDER LED	1	FR HIPS BK	
12	4856013302	SCREW CRT FIXING AS	2	L=190MM	
11		CRT	1		
10	4856013300	SCREW CRT FIXING AS	2	L=70MM	
9	4856214901	WASHER RUBBER	4	CR T1.0	
8	7128301211	SCREW TAPPING	8	T2S WAS 3X12 MFZN	
7	4858305220	SPEAKER	2		
6	4854930701	BUTTON	1	ABS BK	
5	4855530701	DECO SENSOR	1	PMMA C.L	
4	4855615900	MARK BRAND	1	A1050P-H24 T0.4	
3	4856716000	SPRING	1	SWPA PIE0.5	
2	4854848401	BUTTON POWER	1	ABS BK	
1	4852060901	MASK FRONT	1	HIPS BK	

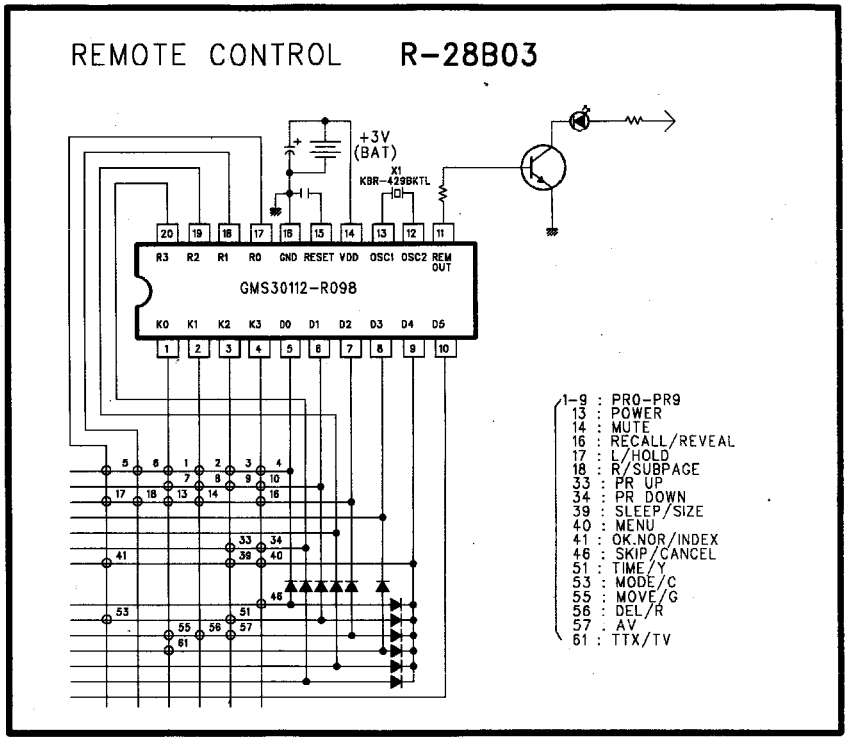
CP-375 CHASSIS SCHEMATIC DIAGRA

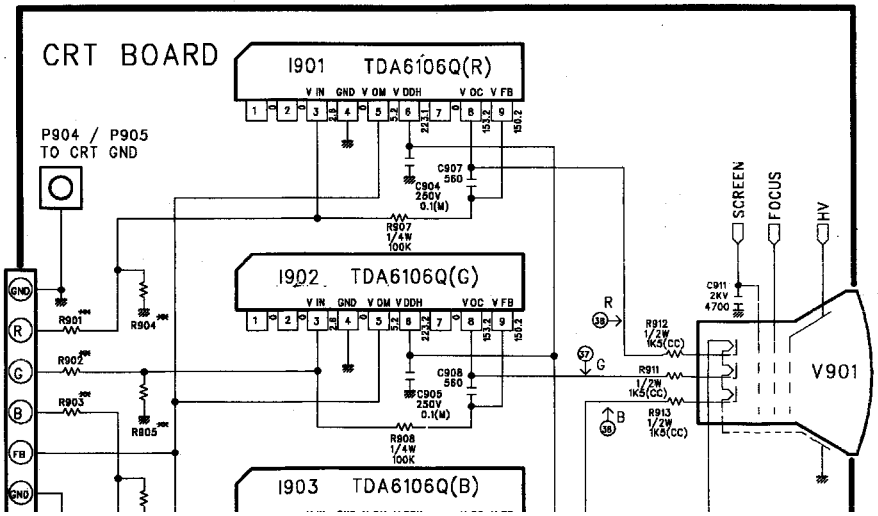
RUN NO.1 6.JAN 1997

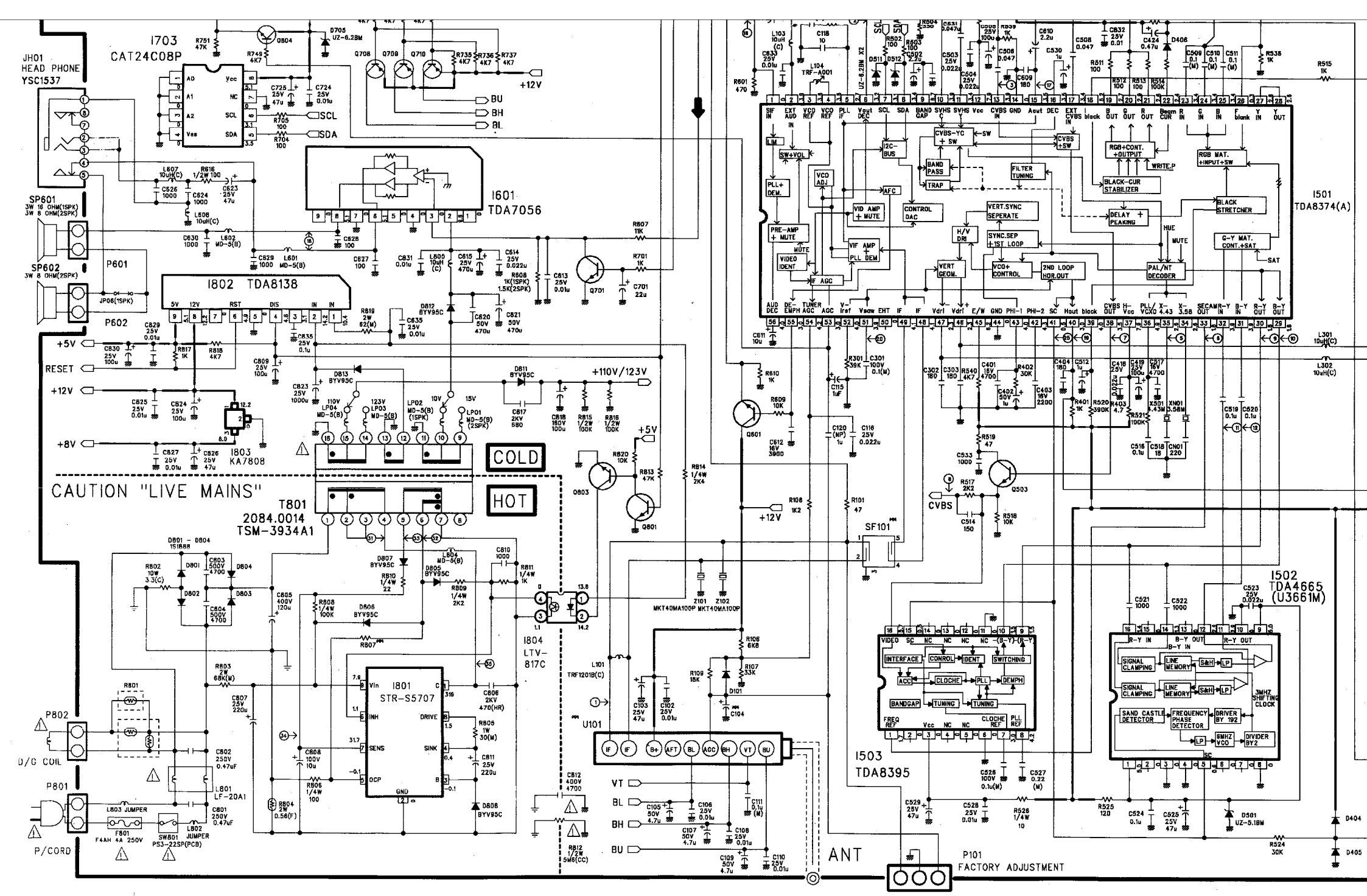


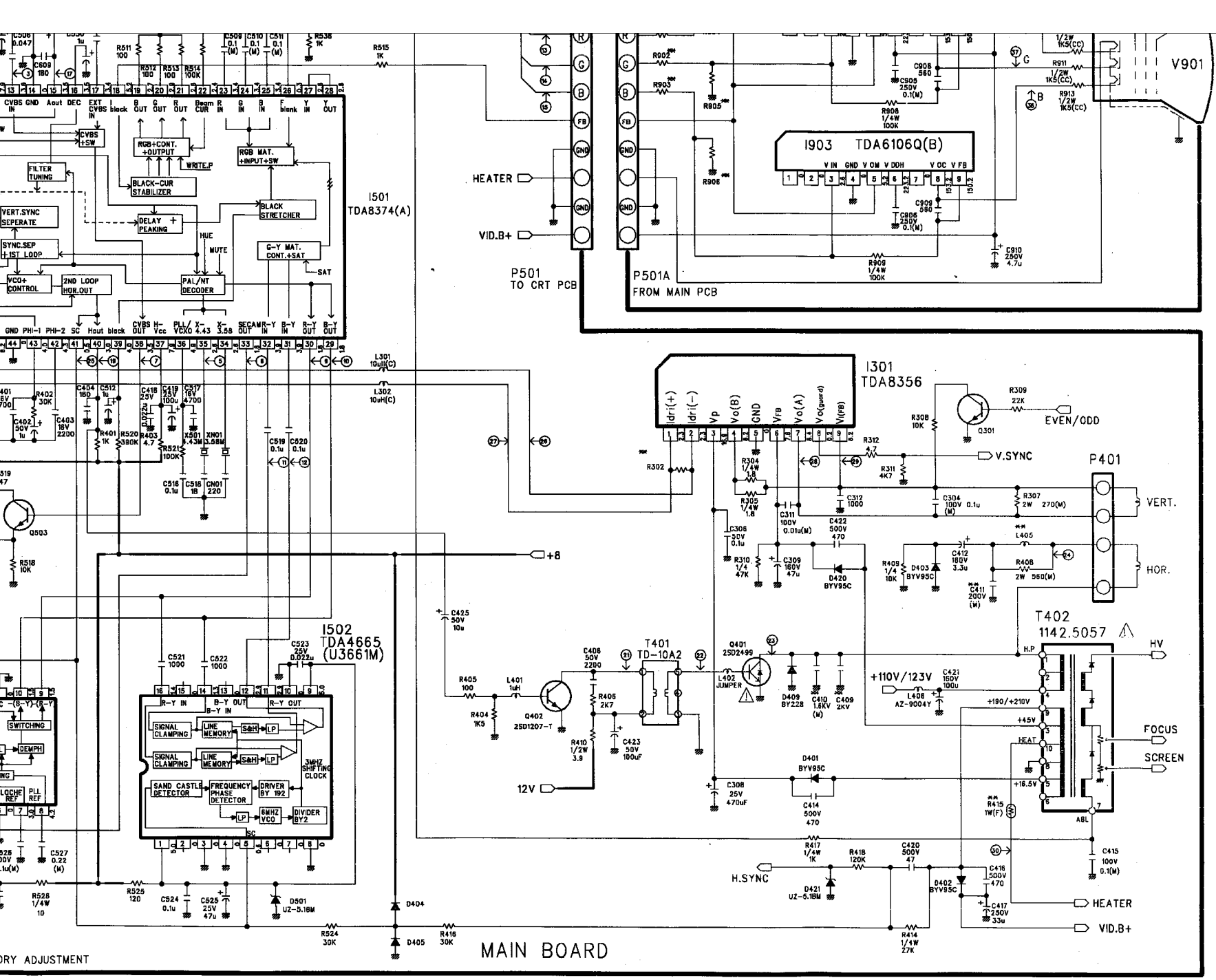
S SCHEMATIC DIAGRAM








I703
CAT24C08P
JH01
HEAD PHONE
YSC1537
SP601
SP602
P601
P602
I802 TDA8138
I601
TDA7056
I501
TDA8374(A)
+5V
RESET
+12V
+8V
I803
KA7808
COLD
HOT
CAUTION "LIVE MAINS"
T801
2084.0014
TSM-3934A1
I804
LTV-
817C
I801
STR-S5707
P802
D/G COIL
P801
P/CORD
+110V/123V
U101
I502
TDA4665
(U3661M)
I503
TDA8395
SF101
CVBS
ANT
P101
FACTORY ADJUSTMENT
BU
BH
BL
SCL
SDA


I501
TDA8374(A)
I903 TDA6106Q(B)
V901
P501
TO CRT PCB
P501A
FROM MAIN PCB
HEATER
VID.B+
I301
TDA8356
V.SYNC
EVEN/ODD
P401
VERT.
HOR.
T402
1142.5057
HV
FOCUS
SCREEN
HEAT
+110V/123V
+190/+210V
+45V
+16.5V
A8L
T401
TD-10A2
I502
TDA4665
(U3661M)
+8
12V
H.SYNC
HEATER
VID.B+
MAIN BOARD

SCHEMATIC DIAGRAM
CHASSIS : CP – 375

* PAL – B/G
* PAL/SECAM – B/G, D/K
  NTSC – 3.58/4.43 (AV)
* PAL/SECAM – B/G
  SECAM – L
* PAL – I

RUN NO.1 DEC . 1996

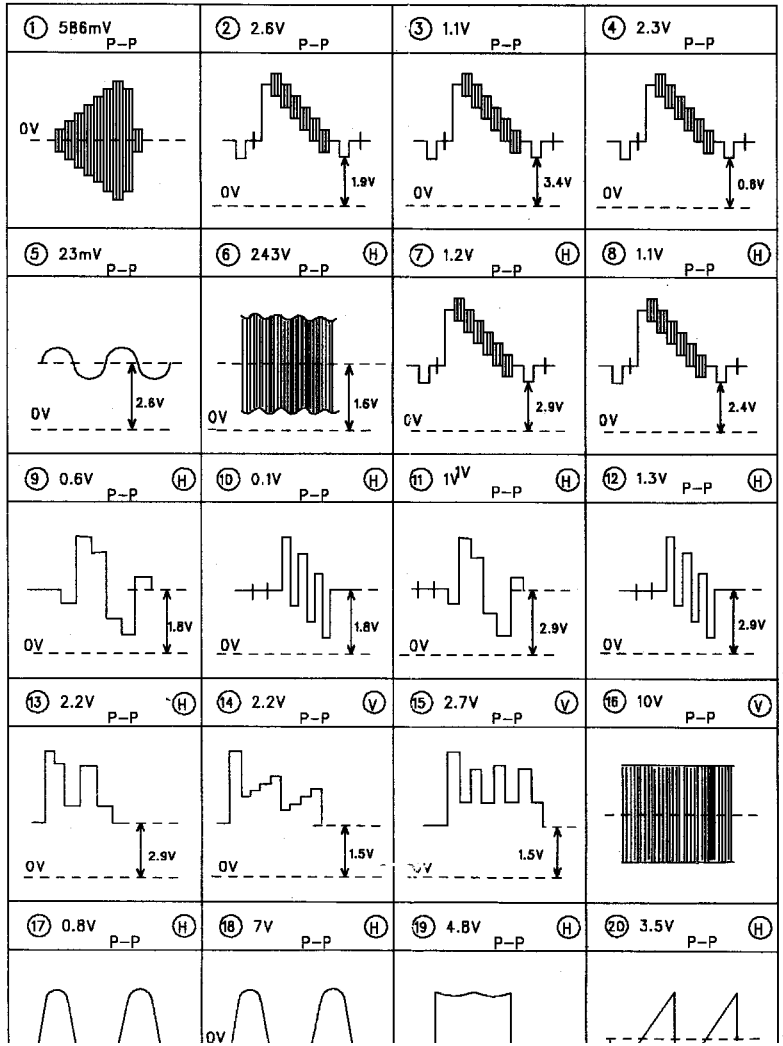
NOTES :

1. ALL RESISTORS ARE 1/6 WATT UNLESS OTHERWISE NOTED.
2. CAPACITANCE VALUES 1 AND ABOVE ARE IN pF EXCEPT AS INDICATED.
3. INDUCTOR VALUES ARE IN uH EXCEPT AS INDICATED.
4. ALL DIODE ARE 1N4148 EXCEPT AS INDICATED.
5. ALL NPN TRANSISTOR ARE KTC3198Y ALL PNP TRANSISTER ARE KTA1266Y EXCEPT AS INDICATED.

WAVE FORMS

VIDEO : 8 STEP PAL COLOR BAR 87.5% AM

AUDIO : 1KHz SINE WAVE 60% FM



DIFFERENT PAR

NO	LOC	NAME	P-P (TP
1	PWC1	POWER CORD	CW42
2	U101	TUNER	3303
3	SF101	SAW FILTER	G196
4	Z501	CERA FILTER	TPS5
5	Z502	CERA FILTER	
6	Z601	CERA FILTER	SFSH
7	Z602	CERA FILTER	
8	I501	IC VCD	TDAB
9	I503	IC SECAM	
10	C801	C LINE ACROSS	250V
11	C802	C LINE ACROSS	250V
12	XN01	X-TAL	
13	CN01	C CERA	
14	Q705	TR	KTC3
15	Q706	TR	KTC3
16	Q708	TR	KTA12
17	Q709	TR	KTA12
18	R729	R C-FILM	33K
19	R730	R C-FILM	33K
20	R732	R C-FILM	4.7K
21	R733	R C-FILM	4.7K
22	R736	R -CFILM	4.7K
23	R737	R C-FILM	4.7K
24	C104	C ELECTRO	50V
25	C105	C ELECTRO	50V
26	C106	C CERA	25V
27	C107	C ELECTRO	50V
28	C108	C CERA	25V
29	Z101	CERA FILTER	
30	Z102	CERA FILTER	
31	IL01	IC AM DEMOD	
32	SL01	SAW FILTER	
33	QL01	TR	

DIFFERENT PART FOR SYSTEM

NO	LOC	NAME	P-B/G [TF]	P/S-B/G.D/K N-3/4 (AV) [TK]	P-I [TU]	P/S-B/G S-L/L' [TA]
1	PWC1	POWER CORD	CW4232	KKP419C	CW3222	CW4232
2	U101	TUNER	3303KHC	3303KHC	DT2-1V17D	3303KHC
3	SF101	SAW FILTER	G1966M	K2950M	J1952M	G1966M
4	Z501	CERA FILTER	TPS5.5MB	TPS5.5MB	TPS6.0MB	TPS5.5MB
5	Z502	CERA FILTER	-	TPS6.5MB	-	-
6	Z601	CERA FILTER	SFSH5.5MCB-	SFSH5.5MCB-	SFE6.0MB	SFSH5.5MCB-
7	Z602	CERA FILTER	-	SFSH6.5MCB-	-	-
8	I501	IC VCD	TDA8374A	TDA8374A	TDA8374A	DTA8374
9	I503	IC SECAM	-	TDA8395	-	TDA8395
10	C801	C LINE ACROSS	250V 0.47u	250V 0.1u	250V 0.47u	250V 0.47u
11	C802	C LINE ACROSS	250V 0.47u	250V 0.1u	250V 0.47u	250V 0.47u
12	XN01	X-TAL	-	3.58MHz	-	-
13	CN01	C CERA	-	50V 220	-	-
14	Q705	TR	KTC3198C	KTC3198C	-	KTC3198Y
15	Q706	TR	KTC3198C	KTC3198C	-	KTC3198Y
16	Q708	TR	KTA1266Y	KTA1266Y	-	KTA1266Y
17	Q709	TR	KTA1266Y	KTA1266Y	-	KTA1266Y
18	R729	R C-FILM	33K	33K	-	33K
19	R730	R C-FILM	33K	33K	-	33K
20	R732	R C-FILM	4.7K	4.7K	-	4.7K
21	R733	R C-FILM	4.7K	4.7K	-	4.7K
22	R736	R -CFILM	4.7K	4.7K	-	4.7K
23	R737	R C-FILM	4.7K	4.7K	-	4.7K
24	C104	C ELECTRO	50V 4.7u	50V 4.7u	50V 4.7u	50V 33u
25	C105	C ELECTRO	50V 4.7u	50V 4.7u	-	50V 4.7u
26	C106	C CERA	25V 0.01u	25V 0.01u	-	25V 0.01u
27	C107	C ELECTRO	50V 4.7u	50V 4.7u	-	50V 4.7u
28	C108	C CERA	25V 0.01u	25V 0.01u	-	25V 0.01u
29	Z101	CERA FILTER	-	-	-	MKT40MA100P
30	Z102	CERA FILTER	-	-	-	MKT40MA100P
31	IL01	IC AM DEMOD	-	-	-	STV8225
32	SL01	SAW FILTER	-	-	-	L9461M
33	QL01	TR	-	-	-	KTC 3198Y
34	QL02	TR	-	-	-	KTC 3198Y

DIFFERENT PARTS FOR SIZE

NO.	LOC.	14"			20"			21"	
1	CRT	ORION	PHILIPS	POLKOLOR	ORION	SAMSUNG	POLKOLOR	ORION	PHILIPS
		A34JLL90X	A34EAC01X	A34EFU13X	A48JLL90X	A48ECR11X	A48EEV33X	A51JSW90X	A51EAL55X
2	SCT1	ISMM03S	ISMM03S	-	ISMM03S	-	-	ISMM03S	-
3	SCT2	-	-	ISHS09S	-	ISHS09S	ISHS09S	-	ISHS09S
4	D/COIL	DC-1450	DC-1450	DC-1450	DC-2050	DC-2050	DC-2050	DC-2070	DC-2070
5	R801	ECPCC180M290	ECPCC180M290	ECPCC180M290	ECPCC180M290	ECPCC180M290	ECPCC180M290	ECPCC140M290	ECPCC140
6	LP04	-	MD-5	MD-5	-	-	MD-5	MD-5	-
7	LP03	MD-5	-	-	MD-5	MD-5	-	-	MD-5
8	L405	L-125	L-125	L-102	L-102	L-102	L-76	L-102	L-102
9	C409	2KV 470	2KV 470	2KV 470	2KV 470	2KV 1000	2KV 220	2KV 220	2KV 470
10	C410	1.6KV 7500	1.6KV 6200	1.6KV 6200	1.6KV 7500	1.6KV 8200	1.6KV 7200	1.6KV 6000	1.6KV 750
11	C411	200V 0.51	200V 0.51	250V 0.68	200V 0.47u	200V 0.51	200V 0.39u	200V 0.3u	200V 0.5
12	R302	1/6W 1.8K	1/6W 1.8K	1/6W 2.2K	1/6W 2.2K	1/6W 2.2K	1/6W 2.2K	1/6W 2.7K	1/6W 2.7
13	R413	1/4W 120K	1/4W 120K	1/4W 68K	1/4W 68K	1/4W 68K	1/4W 82K	1/4W 68K	1/4W 82K
14	R415	1W 1.2(F) A	1W 0.47(F)	1W 0.18(F)	1W 2.4(F) A	1W 1(F)	1W 0.47(F)	1W 1.2(F) A	2W 2.7(F
15	R807	1/4W 2.4K	1/4W 2.4K	1/4W 2.4K	1/4W 2.7K	1/4W 2.7K	1/4W 2.7K	1/4W 2.7K	1/4W 2.7
16	R901-3	1/6W 3K	1/6W 3K	1/6W 3K	1/6W 2K	1/6W 2K	1/6W 2K	1/6W 2K	1/6W 2K
17	R904-6	1/6W 2K	1/6W 2K	1/6W 2K	1/6W 1.6K	1/6W 1.6K	1/6W 1.6K	1/6W 1.6K	1/6W 1.6K
18	P401	YFW500-05	YFW500-06	YFW500-06	YFW500-05	YFW500-06	YFW500-06	YFW500-06	YFW500-
19	P401A	-	35135/0620+ 35179+ULW =350	35135/0620+ 35179+ULW =350	-	ODY-2190	ODY-2190	-	ODY-2190
20	ZZ132	1401H-1015-1P	1401H-1015-1P	1401H-1015-1P	2001H-1015-1P	2001H-1015-1P	2001H-1015-1P	2101H-1015-1P	2101H-1015-
21									
22									

DIFFERENT PART FOR SPEAKER (OPTION)

NO		1SPK	2SPK
1	SP01	3W 16 OHM	3W 8 OHM
2	SP02	-	3W 8 OHM
3	R608	1K	1.5K

3. INDUCTOR VALUES ARE IN uH EXCEPT AS INDICATED.

4. ALL DIODE ARE 1N4148 EXCEPT AS INDICATED.

5. ALL NPN TRANSISTOR ARE KTC3198Y ALL PNP TRANSISTER
   ARE KTA1266Y EXCEPT AS INDICATED.

6. ALL THE DC VOLTAGES IN EACH POINT ARE MEASURED
   WITH DIGITAL VOLTMETER
   UNDER THE STANDARD PAL COLOUR BAR SIGNAL INPUT
   (5 CHANNEL) AND ALL CONTROLS SET TO THE
   MAXIMUM POSITION.
   AT NOMINAL LINE VOLTAGE AC 230V 50HZ

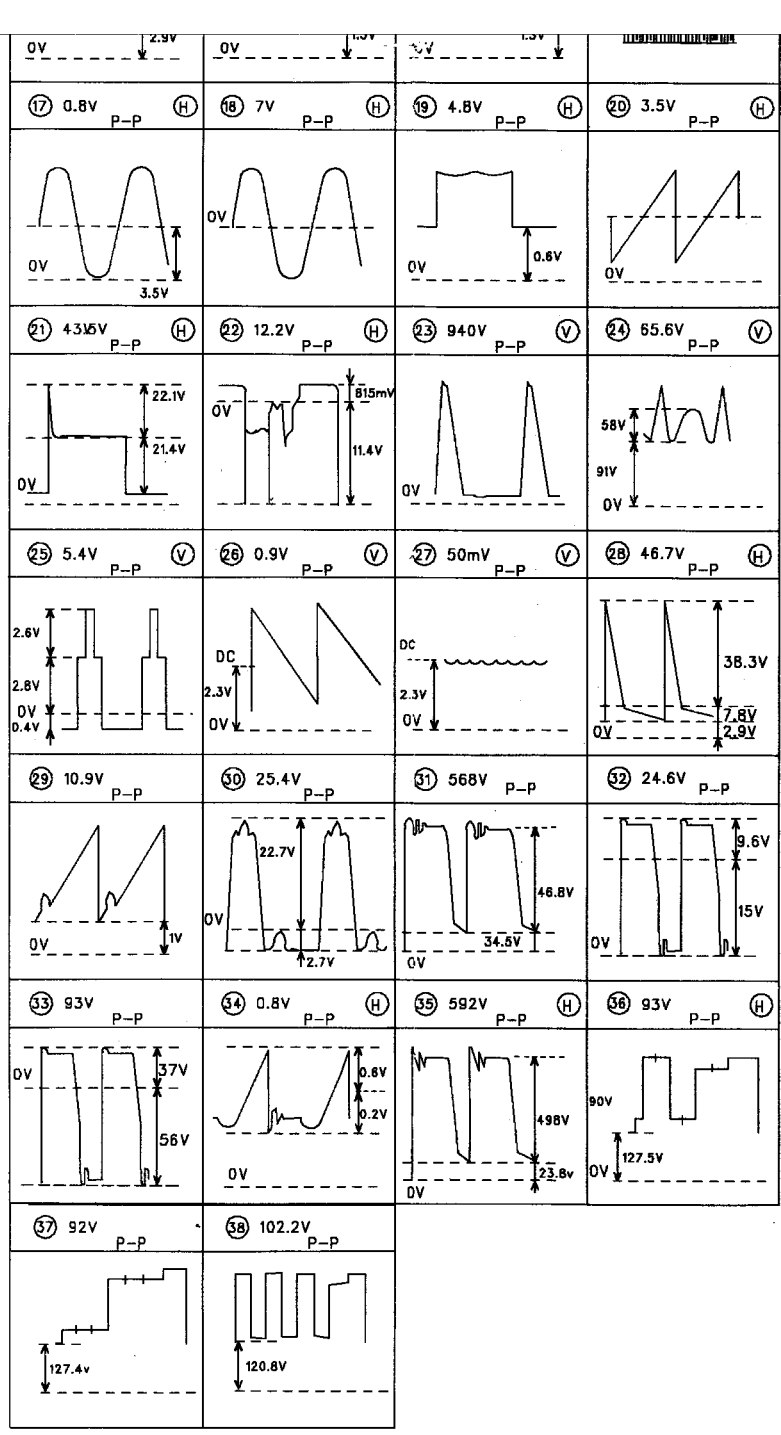
7. SINCE THIS SCHEMATIC DIAGRAM IS A STANDARD ONE
   THE CIRCUIT AND CIRCUIT CONSTANTS MAY BE SUBJECT TO
   CHANGE FOR IMPROVEMENT WITHOUT ANY NOTICE.

SAFETY CAUTION :

BEFORE SERVICING THIS CHASSIS IT IS IMPORTANT THAT
THE SERVICE TECHNICIAN READ AND FOLLOW THE
"X-RAY RADIATION PRECAUTION, "SAFETY PRECAUTIONS"
AND "PRODUCT SAFETY NOTICE" IN THE SERVICE MANUAL.

PRODUCT SAFETY NOTE :

COMPONENTS MARKED WITH ⚠ ARE IMPORTANT FOR MAINTAINING.
THE SAFETY OF THE SET AND SHOULD BE REPLACED ONLY
WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL OR
SPECIFIED ONE IN THE PARTS LIST.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH
IMPROPER SERVICING.



28	C108	C CERA	25V 0.0
29	Z101	CERA FILTER	–
30	Z102	CERA FILTER	–
31	IL01	IC AM DEMOD	–
32	SL01	SAW FILTER	–
33	QL01	TR	–
34	QL02	TR	–
35	QL03	TR	–
36	Q702	TR	–
37	DL01	DIODE	–
38	DL02	DIODE	–
39	RL01	R C-FILM	–
40	RL02	R C-FILM	–
41	RL03	R C-FILM	–
42	RL04	R C-FILM	–
43	RL05	R C-FILM	–
44	RL06	R C-FILM	–
45	RL07	R C-FILM	–
46	RL08	R C-FILM	–
47	RL09	R C-FILM	–
48	RL10	R C-FILM	–
49	R101	R C-FILM	–
50	R712	R C-FILM	–
51	R713	R C-FILM	–
52	R752	R C-FILM	–
53	CL01	C CERA	–
54	CL02	C EKECTRO	–
55	CL03	C CERA	–
56	CL04	C ELECTRO	–
57	CL05	C CERA	–
58	CL06	C ELECTRO	–
59	CL07	C CERA	–
60	C707	C ELECTRO	–
61	C728	C CERA	–
62	JP01	WIRE COPPER	–
63	JP08	WIRE COPPER	WIRE CO
64	JP09	WIRE COPPER	WIRE CO
65	M721	SHIELD CASE	SPTH-C

30	Z102	CERA FILTER	–	–	–	MKT40MA100P
31	IL01	IC AM DEMOD	–	–	–	STV8225
32	SL01	SAW FILTER	–	–	–	L9461M
33	QL01	TR	–	–	–	KTC 3198Y
34	QL02	TR	–	–	–	KTC 3198Y
35	QL03	TR	–	–	–	KTC 3198Y
36	Q702	TR	–	–	–	KTC 3198Y
37	DL01	DIODE	–	–	–	MA859
38	DL02	DIODE	–	–	–	MA859
39	RL01	R C-FILM	–	–	–	22K
40	RL02	R C-FILM	–	–	–	100
41	RL03	R C-FILM	–	–	–	2.2K
42	RL04	R C-FILM	–	–	–	10K
43	RL05	R C-FILM	–	–	–	10K
44	RL06	R C-FILM	–	–	–	68K
45	RL07	R C-FILM	–	–	–	1/4W 120
46	RL08	R C-FILM	–	–	–	15K
47	RL09	R C-FILM	–	–	–	750
48	RL10	R C-FILM	–	–	–	2.2K
49	R101	R C-FILM	–	–	–	47
50	R712	R C-FILM	–	–	–	10K
51	R713	R C-FILM	–	–	–	4.7K
52	R752	R C-FILM	–	–	–	10K
53	CL01	C CERA	–	–	–	50V 22
54	CL02	C EKECTRO	–	–	–	50V 47u
55	CL03	C CERA	–	–	–	50V 0.01u
56	CL04	C ELECTRO	–	–	–	50V 4.7u
57	CL05	C CERA	–	–	–	50V 22
58	CL06	C ELECTRO	–	–	–	50V 4.7u
59	CL07	C CERA	–	–	–	50V 82
60	C707	C ELECTRO	–	–	–	50V 10u
61	C728	C CERA	–	–	–	50V 16
62	JP01	WIRE COPPER	–	WIRE COPPER	–	–
63	JP08	WIRE COPPER	WIRE COPPER	WIRE COPPER	WIRE COPPER	–
64	JP09	WIRE COPPER	WIRE COPPER	WIRE COPPER	WIRE COPPER	–
65	M721	SHIELD CASE	SPTH-C T0.25		SPTH-C T0.25	SPTH-C T0.25

DIFFERENT PART FOR SPEAKER (OPTION)

NO		1SPK	2SPK
1	SP01	3W 16 OHM	3W 8 OHM
2	SP02	–	3W 8 OHM
3	R608	1K	1.5K
4	LP01	–	BEAD
5	LP02	BEAD	–
6	SP06	WIRE COPPER	–
7	P602	–	YW025-03
8	MASKS	14/20/21A5	20T1,20T2
		14/20/21Q1	21T1,21T2

RESISTOR

CARBON FILM	
M-OXIDE FILM	(M)
CARBON COMP	(CC)
FUSIBLE	(F)
CEMENT	(C)

CAPACITOR

ELECTRO	
CERAMIC	
CERAMIC CH	(CH)
TANTAL	(T)
ELECTRO NONPOLAR	(NP)
MYLAR	(M)

COIL

PEAKING	
CHOKE	(C)
BEAD	(B)